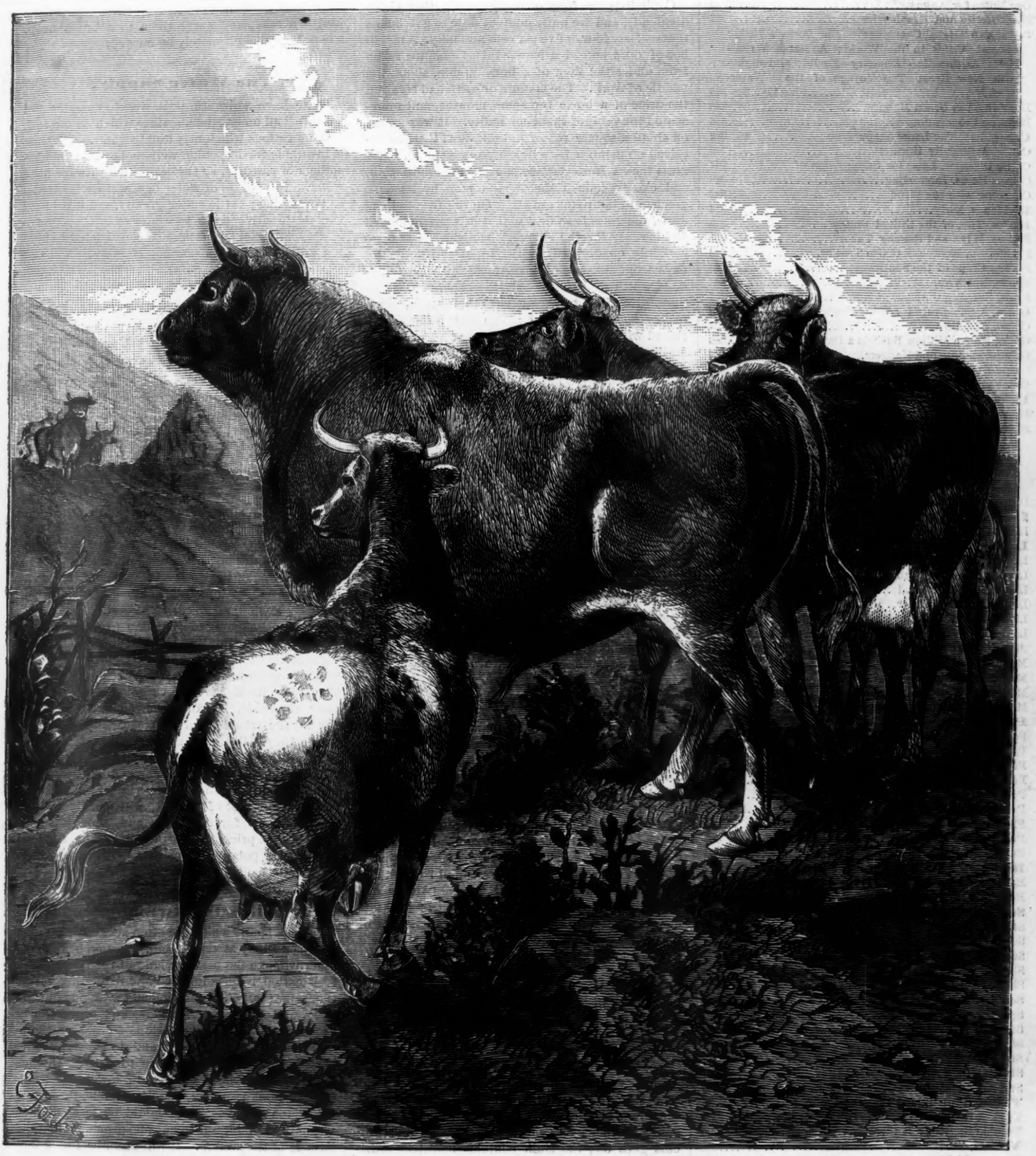
AMERICAN AGRICULTURIST

For the Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

VOLUME XLI.—No. 8. NEW YORK, AUGUST, 1882. NEW SERIES—No. 427.



IS THERE TROUBLE BREWING?—*Drawn and Engraved for the American Agriculturist.*

An interesting fact connected with the driving of large numbers of cattle from Texas northward is, that when only male animals constitute the herd, they are alarmed by slight causes, and easily stampeded. If, however, a few cows are taken along, the males gather around these to protect them, and the herd is thus kept together.—In the above spirited sketch Mr. Taurus appears in his true character, bidding defiance to the challenging disturber of the quiet of the herd, with the sympathy of his consorts.

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ENTERED AT THE POST OFFICE AT NEW YORK, N. Y., AS SECOND CLASS MATTER.

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AMERICAN AGRICULTURIST.

NEW YORK, AUGUST, 1882.

Suggestions for the Season

Early Dividends.

Capitalists are fond of buying stock that yields dividends, and are quite content now to get bonds that will pay four or five per cent annually. A neighbor of ours spread a barrowful of manure taken from under the floor of a horse stable, about the middle of April. The manure or earth had received the urine of a horse for some months, and represented the value of that commodity. It was spread on about a square rod of old meadow, that had received no manure for a dozen years or more. The grass took a fresh start soon after the application, and clearly defined the dressed plat, by its dark green, and luxuriant growth. On the twentieth of June, the grass is so heavy, that it is partly lodged and is ready for the scythe. The yield of grass is certainly quadrupled by the top-dressing. Sixty days from the date of investment, he has a dividend worth at least one-half the value of the manure. He will get a second crop this season, which makes another dividend. The sod below is enriched with a great growth of grass roots, which is an increase of capital, and will continue to give fair dividends for several years to come. He is so well pleased with this spring's investment, that he has enlarged the area of top-dressing on the meadow, and applied fresh manure from the stable, made up of leaves, and horse, and cow dung, on the twentieth of June. The grass cut on this second plot was very thin, certainly less than a half ton to the acre. He confidently expects a dividend from this investment in about sixty days, and permanent increase of capital. Now is it not much better for a cultivator to put his capital upon his own land, under his own supervision, and get good dividends, early and often, than to invest in railroads, steamboats, factories, or Wall Street? Investing at home, he knows just what he is about, and with an average expenditure of brain and muscle, he can command early dividends, and keep them coming. The farm is a machine to make money. Let us keep it in good repair, well oiled, and turn out the dollars.

Late Cultivation of Corn.

There is a great difference in the management of the corn crop. Weeding, half-hilling, and hilling, were the old names in New England, for the three dressings the corn crop usually received. Frequently it was cultivated only twice, and the weeds made a thick mat between the corn rows, and very much reduced the yield. It was as much detriment to the land, as to the corn, for it stocked the ground with foul seed, which increased the labor of tillage for years afterwards. We have found it profitable to continue cultivation until the ears throw out their silk, and even later. Once in two weeks is none too often to stir the soil in the early part of the season. The later cultivation in August, should be the mere scratching of the surface, to break the crust and destroy weeds. It is poor economy to let the weeds get a hold, and still worse to go to seed. In our corn patch, we have already destroyed five crops of weeds, and July is not here.

A Hint about Weeds.

In harvesting Indian Corn and Wheat, we cut them long before the grain—the seed, is ripe. When the grain in either is fully formed, the stalks are cut; experience has shown that the ripening process goes on; the stalk contains sufficient nutriment to perfect the grains, and it does this after the plant is cut away from the root. Indeed, the grain thus treated, often comes to greater perfection, than if the plant were left until the seed is fully ripe. What takes place with these crop plants, also occurs with weeds. Many weeds, if cut up while in flower, still have nutriment enough in their stems and leaves, to perfect and ripen a crop of seeds. It therefore happens, that the mere cutting up of many weeds, and leaving them to dry upon the ground, does little towards their extermination. The common Purslane—or "Pussley," for example, has remarkable vitality, its very succulent stems will remain alive for weeks, and even continue to grow after they have been deprived of the root. It is one thing to cut up weeds with the hoe; it is equally important, and it should always be done in gardens, to gather up the weeds by the use of a rake, and carry them to a brush heap, where they will ultimately be burned.

The Water Supply.

If we have a drouth, it is wise to examine and "locate" all moist spots, springs which do not fail, and indications which may lead to water. The time is favorable for deepening wells and opening hidden springs in pastures, so that cattle may always have water. The failure of water in a pasture is often a serious thing; cattle suffer greatly, and it is much trouble to drive them to water or bring water to them. Artificial basins may be constructed to hold the water that falls in summer showers. A clayey spot—if possible a natural basin—is selected, the basin formed, and pigs fed upon the ground when somewhat moist to pack it down.

Care of the Root Crops.

Sugar Beets and Mangels if early sowed, will need little care. They ought not to stand too thick, however, and it would cert .nly pay to go through the rows, thinning out all superfluous plants, whether beets or weeds, leaving the plants 6 to 8 inches apart. If the leaves are not so large as to forbid horse-hoeing, this should be done and the crop "laid-by." No root crop should ever be left after horse-hoeing, without a man going through it immediately after, to lift and straighten up any plants which may have been trodden upon, covered with earth, or injured in any way. Ruta-bagas, and any turnips in drills, need the same general culture. One of the great advantages of the introduction of roots into the rotation is, that when properly treated, no weeds ripen seeds. Even Red Sorrel and Snapdragon succumb to two or three years cropping with Mangels or Swedes. This advantage is often lost by careless cultivators, and nothing offers surer evidence of heedless farming. The crop itself may be very fine, but if kept clear of weeds, it would be enough better to pay for the trouble, and the weeds would then be where they will make no more trouble forever.

Turnips may be sown as late as the middle of August, but the land should be in good heart, and good tilth. Swedish Turnips (Rutabagas) sowed as late as the first of August, will usually make a crop delicious for the table, and, though small, bring a good price. Thus they are often used to follow early potatoes by market gardeners, though by them usually regarded as a farm crop.

Reclaiming Swamp Land.

Swamp lands, which are often accessible to men and teams only at this season, when reclaimed, ordinarily make the best hay land of the farm. This reclamation is accomplished *first* by getting rid of the water; *second*, by plowing and grubbing out the bogs, and the roots of alders, and other woody growths; *third*, by a succession of crops which require tillage to kill weeds, and to ameliorate the surface, before seeding down to grass. Ditches must be made deep enough to lower the water level at least two feet, and if possible, three feet below the surface. They should be located so as not only to drain, but to cut off springs around the outside of the swamp. It will often be found that much of the water comes from a level some two or three feet higher than the general surface of the swamp. This should be kept by itself, and led off around the outside of the swamp, because after the swamp is drained, and cleared, and laid down to grass, it may be found very desirable to irrigate it, and then the water will be just at hand. We do not know much about irrigated meadows in this

country, but it is certain that three or four times the quantity of grass may be cut from them than will grow without the use of the water.

The width of the ditches should ordinarily be considerable, not to carry the water only, but because the sides are likely to slip down, and gradually fill up the channel. For this reason, it is well to slope the sides of the principal ditches at an angle of 45, or even of 30 degrees. These sides will sod over after a while, and it is only thus that open ditches can be permanently held in shape, without the aid of stone walls. Lateral ditches, often at once, and almost always after a few years, may be tiled, and so only the main ditches remain open.

Preparation of the Wheat Ground.

Wheat demands for its perfect development, among other favorable conditions, besides showers and sunshine, depth and richness of soil, thorough tilth, and freedom from excess of moisture. Soil that will yield good clover will bear good wheat. Wheat follows corn very well, but this involves rather late sowing. Where there is a market for new potatoes, which, as they are intended for immediate use, may be freely manured, the potato ground—well plowed and harrowed with a dressing of bone-dust, superphosphate, or, if there is much organic matter in the soil, with a dressing of lime—forms an admirable seed-bed for wheat. One of the best rotations, including winter wheat, is corn on sod, early potatoes, wheat, clover, and timothy, the grass to be mowed as long as it is profitable—the manure being applied in the hill for corn, and put on broadcast very liberally for the potatoes. Winter wheat follows none of the usual root crops well, for it ought to be sowed and up before the middle of September, although it often does well sowed nearly a month later.

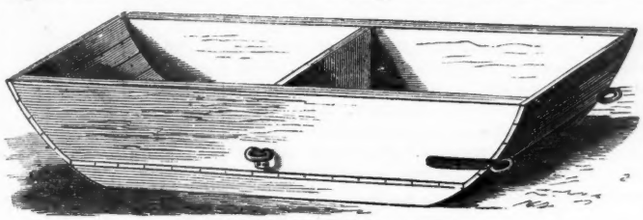
When wheat follows clover, a crop of clover-hay is often taken off early, and a second crop allowed to grow, which is turned under about the first of August for wheat. In case we have very dry weather in July, the growth of clover will be meagre. If, however, the clover stubble be top-dressed at once, as soon as the early crop is cut, with a muck and manure compost, or any fine compost, "dragged in" with a smoothing harrow, the second crop will be sure to start well, while none of the manure will be lost. Lime, or ashes, if they can be obtained, are to be spread after plowing under the clover and manure, and thoroughly harrowed in. Forty bushels of ashes to the acre is about right, and where hearths of old charcoal pits are accessible—ashes, charcoal-dust, and baked earth, all excellent—they form a good substitute for ashes and for lime. Sixty to one hundred bushels of evenly dry-slaked lime, which, if it could have been mixed with an equal quantity of soil or sods during the slaking, would be all the better, is a usual application.

The soil, and particularly wheat ground, is not well enough tilled in this country. We plow 14 to 16-inch furrows, and use a skim-plow; this leaves the surface so mellow, and covers the sod so perfectly, that we think it hardly needs harrowing at all, and only smooth it over with a harrow, and let it go. The skim-plow is a great advantage, but we should take narrow furrows. The Scotch and English plows are a great deal better than ours for this sort of work, for they turn deep narrow furrows, and give much more thorough tillage.

The following practice, on heavy land especially, is excellent: Turn under the first crop of clover as deep as possible, just before it is in full blossom; cross-plow the first or second week in August; then put on 75 bushels of lime or more, and harrow it in lightly. Sow early after a soaking rain, and apply at the time of sowing 250 pounds or more of superphosphate to the acre.

Peat and Muck for Manure.

When one has peat or muck in any form upon his own farm, it is criminal almost not to make use of it, and if it can be bought at any reasonable rate—say at twenty-five cents a load—it will always be well to buy it. It should of course be dug when the water is low in the swamps, and the task of getting out muck may aid essentially the work of reclaiming the swamps. Thus the main ditch may be dug the width of a cart track. By making a narrow preliminary ditch to carry off the water and dry the ground, a horse and cart may be brought into the ditch and the muck carted directly off to dry ground, where it can dry and perhaps be exposed to a winter's freezing and thawing before using in the compost heaps or barn-yard. In all such ditching we must begin at the lowest end of the ditch, so that there shall always be a free outlet for the water. A boat, to be used in removing muck from the bed through a water channel to a hillside, is shown herewith. It is of pine boards nailed firmly to side planks braced by a cross plank at the middle. If made 9 feet long, 4 feet wide, and 16 inches deep, it will float a ton of muck. A runner is placed under each side, so that the boat can be drawn upon the land. A hook or eye should be placed on each side, and others at one end, by which the boat may be drawn. While floating, the boat is moved by handspikes. The place where the muck is heaped to dry should be as near as possible to the bed from which it is dug.



A BOAT FOR GETTING OUT MUCK.

The muck may be very peaty, or the material really may be *peat*—that is, consisting almost entirely of vegetable matter and ash—whereas *muck*, as the word is applied in the United States, is used to mean such as would be of little or no value as fuel, from the amount of soil or sand or calcareous matter in it; but is useful as manure. The peaty mucks are greatly benefited by being treated with lime—in fact it is only by acting upon them with lime or ashes that they can be made rapidly fit for use in composts or for application to the land. The old rule to slake stone-lime with strong brine, adding only brine enough to dry-slake the lime, is a very good one. Such lime may be depended upon for the best results when composted with muck.

Live Stock in Midsummer.

The latter part of summer is often very trying to live stock. Pastures are short, old grain is high, the new not yet fit to feed. Milk may be in great demand and the farmer loath to cut in upon his corn fodder, intended for curing, to feed off the aftermath; he is lucky who can turn his young stock of cattle and horses into mountain or high wooded pastures, where they will have water and may make at least half a living upon underbrush, etc. Early sowed fodder corn comes in well now for milch cows, and there is really no other good use for it. If cut for curing it is hard to dry without molding and decaying, and if left to stand until after the middle of September, when it will cure well, it will be as woody and tough as "corn stalks." When fed to milch cows, fodder corn ought to be cut short and sprinkled with two to four quarts of corn meal per cow each day. There will then be no complaint of the quality or the quantity of the milk. If these are fed without the meal, the milk will surely be thin, and the cows are exhausted by the increased flow, and soon fall off in yield.

Horses in pasture are often extremely annoyed by flies. If they can stand when not in use in dark sweet stables, by all means turn them into the pasture only at night. Gnats and mosquitoes are of little annoyance to horses, but the larger day-flies, and the *Œstrus*, or Bot-fly, set them almost crazy.

Ewes and lambs are usually separated in August, and while none of our domestic animals is more often used as a type of maternal affection than the ewe, yet the agony of separation will be of short duration, and not especially painful if the two flocks, dams and lambs, can be pastured so far apart as not to hear each others calls. It is well to put with the lambs a few wethers as flock leaders, or a ram or two if there is danger of annoyance by passing dogs. The ewes should be penned and their milk drawn enough to relieve their udders several evenings in succession after taking the lambs away. Wounds on any kind of animals are liable to be fly-blown and very annoying. The best treatment that we know of is an application of strong carbolic soap. That which is sold as sheep dip is very good; but be careful not to use the arsenical sheep dips or any thing of that kind. Soft soap or semi-solid soap strongly impregnated with crude carbolic acid is good, and any one can make it. It will be found good for all kinds of raw sores, galls, bites, scratches and the like on man or beast.

The place for pigs at this season is in the apple orchard; the falling fruit is wormy, unless indeed a gale shakes off sound fruit, and the pigs unconsciously slay thousands of injurious insects.

The Manure Harvest.

In the midst of the harvest of grain, and grass, and tubers, we must not forget the compost heap, in which we garner and store the unsowed crops of a future season. The saying that "anything that grows in one summer, will rot before the next," is a safe guide in collecting vegetable matter for the compost heap. When sods, muck, and weeds form a part of the heap, it is not alone the material which we are assiduous in collecting, and put into the heap, that constitutes its whole value. The fermentation induced by the dung and liquid manure, and the action of the lime or ashes added, work upon the earth, adhering to the roots of the weeds, and forming a considerable part of both sods and muck, and develop an admirable quality of plant food. Hence this element of the compost heap, which is generally over-looked as possessing any special value, should never be wanting. It has, moreover, its own offices to perform, in promoting decay, in the formation of humus, and in preserving, locking up, and holding on to valuable ingredients of plant food.

The compost heap should always be laid in even layers, and each layer should go over the entire heap, for thus only can final uniformity be had. We do not mean special-purpose composts, but those made for general farm crops. It would be well if every particle of dung, liquid manure, straw, litter, leaves, weeds, etc., could be worked together into uniform fine compost, and there is really no substantial reason why this should not be done. The gardener would plead for certain special composts. It might perhaps be well to make a special hen-manure compost for corn in the hill, and taking the general compost as a basis, to make one for turnips, by the addition of a large percentage of bone-dust. All this may be done—establish once the rule to compost everything of manurial value, and we have in prospect an abundance of farm-made fertilizers at all times, and for all crops—victory over weeds, a good place for decomposable trash of all kinds, a sacred burial ground for all minor animals and poultry, whose precincts need never be invaded. There will besides be no stagnating pool in the barn-yard, for all liquids will go to the tank, to be pumped over the compost heaps—no nasty, slumpy barn-yard, for everything will be daily gathered for the growing compost heap, and the harvesting of the manure crop, and its increase day by day, all the year round, will be a source of constant pleasure to master and men.

Fruit Ladders.

The number of fruit ladders that we have from time to time figured, is very large. As a rule, the ladder should be self-supporting, and not lean

against the tree. An old fashioned step-ladder, made with wide steps, so that the feet of the picker will not soon get tired, is one of the best. Let the upper step be made broad, to hold a basket; one with a ladder of this kind, and with a hooked stick to pull the branches to him, can reach the choice fruits which grow on the outer branches.

Propagation by Budding.

As a school-master is obliged to begin each year with a primary class, so in a journal like ours, it is necessary to now and then repeat certain rudimentary lessons. There are many—probably the majority—of our readers who look to the *American Agriculturist* as the sole source of their information

Fig. 1.—A BUDDING KNIFE.

in all that relates to agriculture and horticulture. When these ask us to tell them how to layer plants, how to prune, how to graft and to bud, and to do other operations, they will not be satisfied if we refer them to certain books for their information.

Grafting and Budding

have the same end in view, and the operations are essentially the same, but differ greatly both in the manner and the time of performing them. In both, budding and grafting, we place a variety that we know and wish to increase, upon a tree of the variety of which we know nothing. It is a well known fact that our esteemed varieties of fruit are in an unnatural condition; so that when we plant the seeds of these, there is no certainty that the trees thus produced will bear fruit like the parent tree—that from which the seed was taken. The seedlings of our cultivated fruits may produce better kinds than those from which the seed was taken, but generally the fruit will be poorer, and there is no certainty about it. It is on account of this uncertainty that we propagate the varieties that we know, by grafting or budding them upon seedlings about which we know nothing. In grafting, we use a cion, a twig upon which are *several buds*, of a known variety, and insert it upon a tree raised from seed. We plant this cion, or cutting, not in the soil, where it may take root, but upon a tree which already has roots. In budding, we plant a *single bud* upon another tree. The operation of

Budding is Sometimes Called Inoculating,

and the use of this term, "inoculating," has given rise to an incorrect popular notion. In the inoculating of animals, including the human subject, we introduce a virus, or disease, which affects the whole system, and causes certain changes to take place within it. Many have an idea that in "inoculating" a plant, a similar influence is exerted, and that the nature of the plant is somehow so changed by the operation, that it will afterwards bear good fruit. This view of "inoculation," or budding, is entirely erroneous. Had the bud been left on the tree which bore it, it would have expanded, and pushed from it a green shoot, which in time would ripen and become a branch, and ultimately bear fruit. When we remove the bud from its tree, and plant it in another tree, it expands, a shoot appears; this grows and branches, and the bud, in time, becomes the tree, as all the rest of the tree in which it was planted is cut away. In budding, we need

Fig. 2.

Fig. 3.

The Stock and the Buds.

The stock, or plant in which we insert the bud, is a young tree of the same kind as the bud, or of a nearly related kind. Peach, Plum, and many other stocks are young trees raised from seeds; other stocks, as the Quince for budding the Pear, and those for the Dwarf or Paradise Apple, are young trees produced by layering. In budding the Peach, the stocks are from seeds planted the spring of the same year; the plants, with good cultivation, will be large enough to bud in August or September. Apple stocks and others grow for two or more years. But we must now assume that one has his stocks ready; the next step is

The Selection of the Buds.

It is all important that the buds be true to name; hence they should be taken from bearing trees. When a fruit tree has completed its growth for the season, that is, when the branches have ceased to increase in length, there then appears in the *axil* of each leaf—the angle where the leaf joins the stem—a bud. Examine any shoot of the current season's growth, and these buds will be found; those near the end of the shoot will be immature, those at its base small and poorly developed, while between these extremes will be several well-formed, plump buds. In securing the buds, take always the shoots that have grown this year. Such sticks of buds may be cut, and if prevented from drying, may be kept in good condition for a week or ten days. When the shoots are cut, the leaves should at once be removed by cutting through the petiole, or leaf-stalk, half of which should remain attached to the shoot. Such sticks of buds may be kept in damp moss, damp sawdust, or be wrapped in wet cloths. If simply moistened and inclosed in a tight tin box, they will keep well.

The Time for Budding

varies with the kind of fruit, the locality, and the season. The usual succession is Plum, Pear on Pear stocks, Apple, Cherry, Pear on Quince, and Peach. The precise time for each kind is, when the bark on the stock will "run,"—that is, when it will readily part from the wood, this being the condition necessary in the stock; of course the buds must be plump and well formed.

The Operation of Budding

is a very simple one, and those who make a business of it become very rapid budders. In the largest nursery in the Southern States, the best

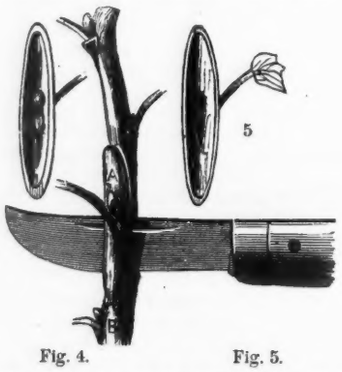


Fig. 4. Fig. 5.

budder is one who was formerly a slave. In the large Peach nurseries, the budder has two assistants; one goes ahead and prepares the stocks, by rubbing or cutting off twigs, and removing leaves from the place where the bud is to go; the other follows and ties the buds. Of course the amateur who inserts but a few buds, will perform all these operations for himself. It is a matter of importance to put the bud on the right side of the stock. If the rows run east and west, the bud is inserted on the north side, and when they run north and south, on the west side. It is also important to insert the bud as low down on the stock as a proper place can be found for it.

The Budding-Knife

is the only implement used in budding, and every budder has his own notions as to the proper form of the blade. Budding-knives, like that in fig. 1, are made with a thin ivory point at the end, for the purpose of lifting the bark, but experienced budders use the blade for both making the cuts and lifting the bark. The first step is, to select the place for the insertion of the bud. Two cuts are made upon the stock, down through the bark to the wood; one crosswise, and the other extending from this downwards, forming a **T**-like incision, as in fig. 2. Figure 3 shows the corners of the bark lifted, ready for the bud. The bud is now to be separated from the stick, though some budders first cut the bud, and hold it between the lips until they have made the cuts upon the stock. Figure 4 shows the manner of removing the bud from the stick; the knife enters at *A* half an inch above the bud, and, by a downward cut, comes out at *B* three-quarters of an inch below it. In making this

Fig. 6.

Fig. 7.

Fig. 8.

cut to remove the bud, as little wood as possible is to be taken off with it. When the bud is removed, it will consist of, besides the bud itself, a shield of bark, a portion of petiole or leaf-stalk that has been left attached, and a small portion of wood removed in the cutting, as in fig. 5. European budders direct the removal of the attached piece of wood, but our budders pay little attention to it, as unless it parts very readily from the shield of bark, the base of the bud may be injured by its removal. Holding the shield of bark and its bud by the leaf-stalk as a handle, it is placed in the incision (fig. 3), and pushed well down. If the stock is in the right condition for budding, the pushing of the bud to its place will be easily done, and the bark upon the stock need only to be lifted at the corners of the cut, to allow of the entrance of the shield; the bark at the upper end of the shield is then cut square across, so that it may fit the horizontal cut on the stock. Figure 6 shows the bud in place, and ready to be tied. The tying material is usually bass-bark, moistened to make it flexible; woollen and cotton yarn are both used, and some budders use thin and flexible corn-husks, selected from the interior layers at husking time. Figure 7 shows one method of tying buds, and fig. 8 another. In all cases, the object is to hold the parts in closest possible contact, and yet not injure the bud. In about 10 days, or two weeks, after the insertion, the buds must be looked to; the stock is still growing, and a serious strangulation may occur if the ties are left as they were applied. At this time it may be ascertained if the operation has been successful, or if the bud has "taken." If the bud and its bark look shrivelled, and the attached leaf-stalk is still remaining and dead, the operation has failed. If, however, the bud is still plump, the shield of bark bright, and the bit of leaf-stalk has dropped, the operation is successful. In case of failure, and the stock is still in good condition, another bud may be inserted; otherwise the stock may be left until next spring, and then be grafted. When the buds are found to be all right, the tie may be loosened, or cut through, to allow of the growth of the stock. The inexperienced will do better to loosen the knot sufficiently to allow of the increase in diameter of the stock, but retain the tie to protect the bud until later. When a bud has taken, and the ties loosened, nothing more is to be done until the following spring, when all of the stock above the bud is to be cut away. It is, of course, important to properly label the budded trees, that the kind of bud inserted may be known. In nurseries, this is done by labelling the rows, but

in small operations, the stocks may each be marked by a label with the variety of bud inserted.

Making Vinegar.

In a large orchard, the best use to make of windfalls, is to convert them into vinegar. We know an orchardist in a Western State, who makes a large share of his crop into vinegar; he finds it to his profit to look after the wind-falls. He keeps a portable or hand-mill for the purpose, and by collecting, grinding, and pressing the fallen fruit, adds materially to his vinegar crop in the course of the season. He does not mention the fact to those who buy his vinegar, but tells us that this practice goes far to keep the Codling moth in subjection.

The Peach Harvest.

On the whole, promises to be large in the noted Peach districts. Within a few years, many have planted Peach orchards in localities not heretofore regarded as "Peach regions," and these will probably market their first crop this year. Comparative novices will have to compete with experienced growers, and must conform to established customs. Crates for sending Peaches a long distance are preferable to baskets. The standard crate consists of two ends and a middle-piece of ⅞-inch stuff. These pieces are 7½ by 14 inches. For each side of the crates, use four pieces, 2½ inches wide, and 23½ inches long; for the top and bottom each, one piece 6½ inches wide, and 23½ inches long, the sides, top, and bottom, of ⅞-inch stuff. The strips should be well secured to the end and center-pieces by nails. If the crates are to go a long distance, a strip should be nailed across the top and bottom at each end; this, when they are stacked upon one another, will allow of sufficient ventilation. In packing Peaches, more care is required than with any other fruit; a single over-ripe Peach will spoil the sale of a crate. Hence, Peaches, as they are picked, should be turned out upon a table or bench, and carefully examined; every one that may become soft before the fruit will be sold, should be rejected. In filling the crates, they should be so full as to require some pressure to bring the top to its place. Assort the fruit, but let each crate be of the same quality all through. It is customary to make three grades, distinguishing the "extra" by "twigging,"—that is, by placing a leafy twig of the Peach-tree upon the fruit before the cover is nailed down. Mark the crates plainly, with the name of the consignee and that of the shipper, and always inform the commission merchant in advance of the shipment by letter or by telegraph.

The Grapevine in August.

Most of the active work of the vineyard is over, still the vines will need some care. The laterals may still need pinching, and late shoots may push where they are not wanted, and must be broken off. Most of the troublesome insects of this season are large, and readily noticed, so that the only remedy, whether for the large grapevine caterpillars, or the beetles mentioned on other pages, hand-picking can be applied. The chief troubles of the grape-grower this month, are the Leaf-hopper, incorrectly called Thrips, and Mildew. The little insect, which in some places rises in clouds as one passes among the vines, and appears of a general dingy-white color as it flies, is, when caught and examined, found to be handsomely marked with scarlet. It remains attached to the leaves, sucking the juices, in its early life, and it is only when it gets wings, that its presence is usually noticed. The only remedy that has been suggested for this Leaf-hopper in its winged state, is to carry lighted torches among the vines at night. Mildew appears in the hot dry days. Pale spots are seen on the leaves, and if the underside of these be examined, there will be found the gray patches of the minute fungus, which causes the trouble. Sulphur is the remedy. This, upon the first appearance of the Mildew, should be freely and thoroughly dusted upon the foliage of the vines. Bellows for the purpose are sold at the seed and implement stores. The bellows are like an old-fashioned kitchen bellows, and have a wide tube about an inch across. The valve hole is stopped by a cork, and a quantity of Flowers of Sulphur being placed in the body of the bellows, through this opening, it is blown, when the bellows is worked, like a fine cloud of dust, which settles on the foliage, and soon puts an end to the Mildew. The dusting should be done on a hot still day, and two, or at most three applications, will save the foliage, which otherwise would soon become useless.

The Strawberry Bed.

Those who wish to have an increased supply of Strawberries next year, should provide for it at once. Last month we gave sufficient directions for pot-layering the plants; this can continue this month, and if the plants can be set next month, a good crop may be had next year. This method of multiplying the strawberry looks more formidable in description, than it is in reality; the labor is not much, while the returns are most satisfactory.

Keep the Poor Fruit at Home.

In our frequent walks among the dealers, we often wish that we could have the company of those who send fruit to market. Here are several barrels of apples, waiting for the cart to take them to the dump—Why? Merely because the sender sent too much. His "Early Harvest," "Primate," or "Alexander," trees bore well; he shook off the fruit, gathered it up, good and bad, bruised and sound, into barrels, and sent it to market. It had no sale; decay set in, and the commission man can only get rid of it at the dump, and has a bill against the sender for expenses. Had one-third of this fruit been kept at home and fed to the pigs, or ground to make cider for vinegar, the better two-thirds would have had a ready sale. Many no doubt think that we harp needlessly, every year, upon this matter of assorting fruit. The caution is not needless, and we shall continue to repeat it, until we see a better state of things in the market. A peck of poor fruit will spoil the sale of a barrel. The price is not fixed by the many good specimens, but the few poor ones bring the whole lot down to their level. Every one who sends fruit or other produce to the New York or any other market, should know that it is sold by its appearance.

Marketing Pears.

Pears, whether early or late, should never remain on the tree until they become mellow. Whenever they have made their growth they should be gathered. It is easy to tell the proper condition by observing the ease with which the stem parts from the tree. If on taking hold of a pear and lifting it, the stem readily breaks away from the spur to which it is attached, the fruit has received all the nourishment it can get from the tree, and the sooner it is gathered the better. Pears are sent to market in crates and in half-barrels; especially fine specimens are sent in shallow boxes, only deep enough for a single layer of fruit, and each pear is wrapped in thin white paper. Extra specimens of any of the standard kinds, will bring enough more to pay for this extra care in packing. The early varieties mature quicker after gathering than the later kinds, but all should reach the market in a firm and hard condition. As with all other fruit, it will pay to carefully assort pears. Make three lots, firsts and seconds for market, and the third for keeping at home—for the pigs if need be, there is positively no sale for poor pears in the market.

Blackberries and Raspberries.

When the crop has been gathered, it is best to cut away the old canes. We are aware that some claim that it is better to leave these until fall, with the idea that they will strengthen the root. We find that the best cultivators cut out the canes as soon as the fruit is gathered. The growth of the new canes, that are to bear fruit next year, is to be attended to. If more shoots are thrown up from the roots than are wanted, they should be treated as weeds, and cut up. The hight of the new growth will depend upon the manner of training; three or four feet is sufficient for Raspberries, and five or six feet for Blackberries. When the shoots have reached the desired hight, stop them by breaking off the ends.

Vines Rooting, and not Rooting.

A correspondent asks about the advice we have given in our Hints about Work, to prevent the vines of the Sweet Potato from taking root, while we say that those of the Winter Squashes should not be disturbed, but allowed to make all the roots that they will. The advice is in both cases good in the Northern States. If we were growing Sweet Potatoes in Texas, or wherever the frost did not kill the vines, we should let them take root as they pleased. In the Northern States, the season is only long enough for the potatoes formed at the base of the sets to come to perfection. If the vines are let alone, roots will form at each joint of the plant, and some of these roots will swell and try to form potatoes, but they will rarely become larger than a lead-pencil, or one's little finger, before the frost stops all growth, and the energy expended in forming these little roots is wasted. We therefore advise lifting the vines of the Sweet Potato, to prevent the formation of multitudes of small roots, that can come to nothing, and by so doing direct the energies of the plant to perfecting the roots at the base. With the Winter Squashes, it is different. These form roots at the joint, but these contribute to the growth of the fruit; they do not attempt to become anything but roots, and the more of these a vine has, the larger will be its fruit, the squashes. As these roots serve a very different purpose from those of the Sweet Potato, we encourage them.

Asparagus in the Market.

A correspondent in Arizona, sent us several inquiries concerning Asparagus, which we found that the dealers could not answer off-hand. It was some trouble to get at the answers, and as they may interest others, we give them here. Of course, the questions will be inferred from the replies. The bunches of Asparagus are nine inches long, and between four and five inches in diameter; they are made up neatly, and of uniform size, by use of a "buncher," of which there are several kinds in use. The small ends of the shoots are all on the same level, and the lower end is cut square. There are two ties, usually of bass-matting, one near the bottom, and another near the top. The average weight of the bunch is two and a half pounds. The price of the earliest, which comes from a few growers in Georgia, and other Southern States, is from 75 cts. to $1.00 per bunch. When the regular crop from Long Island and New Jersey comes to the New York market, its price ranges from $1.75 to $2.50 the dozen bunches. Asparagus is an article of which there is seldom "a glut" in the market. It may be kept for several days, hence it is not necessary to get rid of it at any price for fear of loss. The supply is limited, as it is not grown by tenants, and those who occupy land transiently, as it must be grown for three years before any return is received, and a plantation, when once established, remains productive for many years. To be a grower of asparagus, one must have sufficient capital to allow him to wait for at least three years before the crop can be marketed, hence it is not likely that the supply will ever exceed the demand. The greater part of the asparagus brought to the New York market, has green tops. A few fancy that which is white throughout, and to meet this demand, some growers blanch the shoots. This is done by coating the bed heavily with salt hay, to exclude the light from the shoots as they push above the soil. In localities at a distance from the coast, straw may be used instead of salt hay. Asparagus to be kept, should be placed in the dark, and if in danger of wilting, the butt-ends may stand in water.

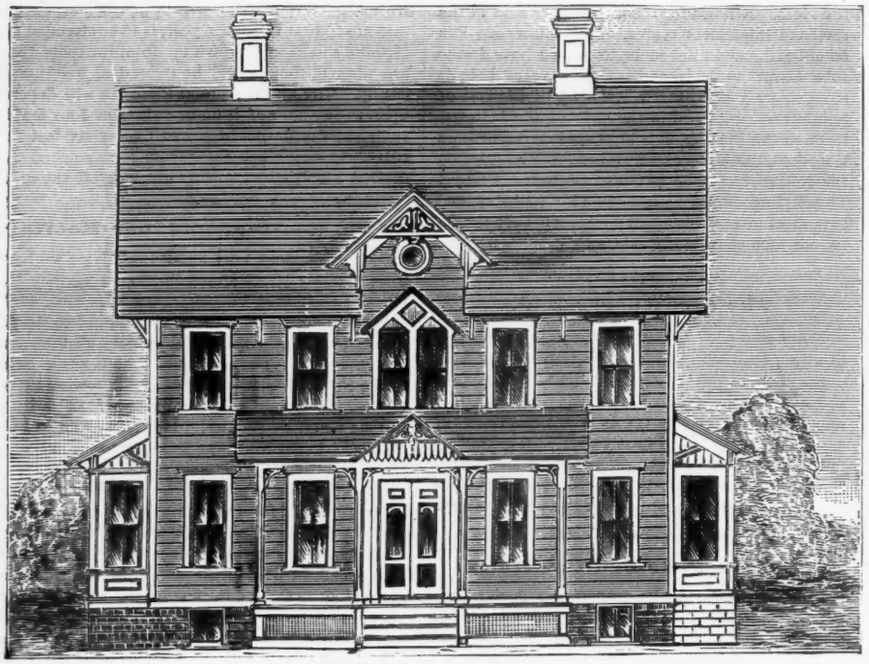


Fig. 1.—FRONT ELEVATION.

Country House, Costing $2,700 to $3,200.

Built as here Described, by day's work, $3,100.

CLASS III.—2nd PRIZE.—BY EDW. PRATT, HANOVER, MICH.

The full engravings showing two elevations and the minutiæ of the floor plans, together with the detailed specifications, leave little to be added. There would seem to be an unnecessary amount of floor room devoted to halls, especially in the Second Story. By changing the position of the beds in the two front chambers, and placing their entrance doors at the interior corners, a bedroom or sewing room, 7 by 10 feet, could be made of the front end of the hall. Half glass doors would be needed to admit light to the hall. Over one-third of the rear division is also in the hall.—The cost of the house will vary from $2,750 to $3,200 or more, according to the locality, price of timber and lumber, cost of labor, etc.—The following is the substance of Mr. Pratt's specifications, which may be used as the basis of a contract. The table gives in

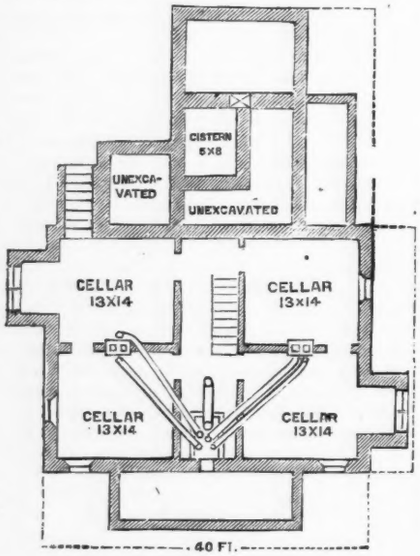


Fig. 3.—CELLAR OR BASEMENT.

detail the materials. Where the stone specified is not available, brick will need to be substituted.

Carpenter Work.—FRAME: Main building to be full frame, well braced and pinned, and secured by bolts where necessary. For sizes, etc., see bill below. Studding and floor joists, 16 inches from centers. Rafters 24 inches from centers. Joists well bridged. Purline frame in roof. All to be done in the best manner. Rear extension, "balloon frame." Hight of 1st story, main building, 10½ ft. between timbers; 2d story, 9½ feet; rear building,

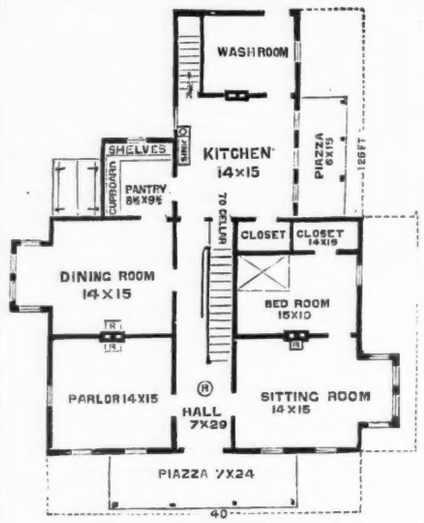


Fig. 4.—FIRST STORY.

1st story, 9 feet; 2nd, 8½ feet....BOARDING—Frame lined on the inside with mill-worked boards, covered with tarred felt paper, and furred off with lath placed 16 inches from centers. Outside covered with good quality 4-inch clapboards. Cornices, piazzas, and all outside work to conform with the elevations, and to be fully completed. Roof boarded and covered with best 18-inch shingles, laid 5 inches to weather. Provide suitable gutters, leaders, etc. ....FLOORS.—Piazza floors of narrow pine; kitchen and pantry, ash; other floors good common 6-inch flooring....WINDOWS.—For sizes see bill. All the principal windows to be hung with weights and pulleys; cellar windows with butts; all to have suitable fastenings....BLINDS to be well hung and trimmed. Inside blinds on bay windows....DOORS —For sizes see bill. All to be well fitted and hung; provide all necessary locks and bolts, with bronze trimmings on front and hall doors; other doors white porcelain. Outside and inside cellar doors to be suitably hung and trimmed....CASINGS to be 6 inches wide in the principal rooms; 5-inch in rear rooms and chambers, with moulded edge, and suitable band mould base, and base mould plinth blocks. Do all that may be necessary to make a good and suitable finish. Kitchen to be wainscoted 3 feet high....STAIRWAY—To be located as shown, of easy rise and tread, well finished, with walnut Newel, balusters and rail. Stairs in rear and to cellar and attic as shown....PANTRY—To be finished with shelving, cupboards, flour and meal chests, drawers, etc. One cellar to be finished for a milk-room. Put bell-pull at front door; bell in kitchen.

Bath-room.—To be provided with bath-tub and wash-basin with waste pipes. A cast-iron sink and pump to be placed in the kitchen, with cupboard under, and have large waste pipe and drain.

Mason Work.—CELLAR—To be excavated as shown on the plan and trenches dug below frost. Cistern dug and dirt levelled. Walls and foundations to be of cobble stone of large size, properly faced, and laid in lime and sand mortar. The stone in foundations above the grade to be blocked, laid in courses and tuck pointed. All joints in the cellar to be pointed....CISTERN as shown on plan, 7 feet deep, thoroughly plastered with water-lime, and lathed and plastered on the bottom of the floor timbers overhead with water-lime mortar. Opening for entrance and ventilation as shown. Good inlet and overflow pipes and drain to be provided....CHIMNEYS, as shown, well laid and plastered smooth inside, and provided with all necessary openings....PLASTERING—First and second stories to be lathed and plastered two coats of brown mortar and hard finished. Plain Cornice in Parlor and Sitting-room; suitable Center Pieces. Marble Mantels with brackets on chimneys in Parlor, Sitting-room, Dining-room, and Bed-room.

Furnace.—To be placed as shown on plan, with heater pipes and registers. Large heater pipe and register in hallway to warm upper rooms.

Painting.—Paint entire building three coats best paints; colors to suit. Grain Parlor, Hall, Sitting-room Kitchen, Bed-room and Pantry.

Estimate of Materials, Work, Etc.

2 Sills, 6x8 in., 40 ft. long.	4 Purline Beams, 6x8 in. x 16 ft.
4 Sills, 6x8 in., 30 ft. long.	The 40 feet Sills and Plates,
2 Sills, 6x8 in., 26 ft. long.	if not obtainable, may be
2 Sills, 6x8 in., 16 ft. long.	made by splicing 20 feet by
3 Sills, 6x8 in., 20 ft. long.	22 feet pieces together.
1 Sill, 6x8 in., 24 ft. long.	200 Joist, 2x8 in., 16 ft. long.
1 Sill, 6x6 in., 22 ft. long.	40 Joist, 2x6 in., 24 ft. long.
1 Sill, 6x6 in., 16 ft. long.	40 Joist, 2x6 in., 16 ft. long.
1 Sill, 6x6 in., 12 ft. long.	80 Joist, 2x4 in., 22 ft. long.
8 Posts, 4x8 in., 22 ft. long.	200 Joist, 2x4 in., 20 ft. long.
8 Beams, 6x8 in., 30 ft. long.	150 Joist, 2x4 in., 18 ft. long.
2 Plates, 6x8 in., 40 ft. long.	100 Joist, 2x4 in., 16 ft. long.
2 Purline Plates, 6x6 in. x 40 ft.	100 Joist, 2x4 in., 12 ft. long.
8 Purline Posts, 6x6 in. x 9 ft.	25 Joist, 4x4 in., 20 ft. long.
Total of the above 17,996 feet, at $14.00 per 1,000 feet..	$ 251.96

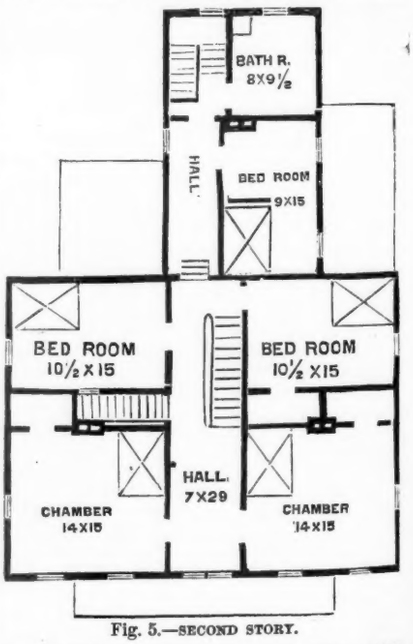


Fig. 5.—SECOND STORY.

8,000 ft. Mill-dressed Roofing and Sheathing, at $12..	96.00
5,000 feet 4-inch Siding, at $18.00 per thousand feet..	90.00
23,000 Shingles, 18-inch, at $3.50 per thousand.....	80.50

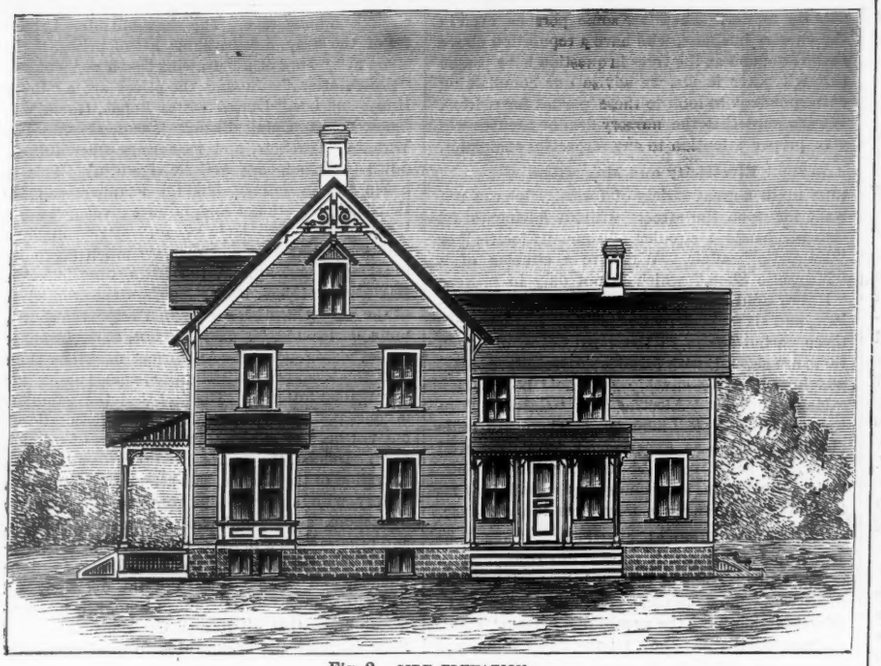


Fig. 2.—SIDE ELEVATION.

Brought over		$ 518.43
4,000 feet 1-inch Finishing Stuff, at $30.00		120.00
1,000 feet 1¼-inch Finishing Stuff, at $35.00		35.00
800 feet 2-inch Finishing Stuff, at $30.00		24.00
700 feet ⅞ by 4-inch Ceiling, at $25.00		17.50
350 feet 1¼ by 4-inch Flooring for Piazza, at $25.00.		8.75
250 ft. 1¼ by 4-in. Ash Flooring for Kitchen, at $30.		7.50
4,000 feet 6-inch Common Flooring, at $18.00		72.00
300 feet ¼-inch Finishing Stuff, at $35.00		10.50
3,000 feet Mouldings, 2½ cts. average per foot.		75.00
1 Pair Front Doors, 4 ft. 6 in. by 8 ft., upper panels glass, 2-inch		16.00
1 Door, 2 ft. 8 in. by 7 ft., 2-inch.	Average $2.25 each.	
7 Doors, 2 ft. 8 in. by 7 ft., 1¼-inch.		
4 Doors, 2 ft. 6 in. by 7 ft., 1¼-inch.		
6 Doors, 2 ft. 8 in. by 6 ft. 8 in., 1¼-inch.		
6 Doors, 2 ft. 6 in. by 6 ft. 8 in., 1¼-inch.		54.00
44 Windows, 4 Lights, 14 by 36 glass, 1¼-in.	Average $2.75 each.	
12 Windows, 4 Lights, 14 by 32 glass, 1¼-in.		
2 Windows, 4 Lights, 12 by 32 glass, 1¼-in.		
7 Windows, 4 Lights, 14 by 28 glass, 1¼-in.		96.25
8 Cellar Windows, 2 Lights, 14 by 20 glass, $1.50 each.		12.00
8 Sets inside and 27 Pairs outside Blinds, av. $1.75.		61.25
275 Days Carpenter Work, at $2.00 per day		550.00
175 Yards Excavating, at 15 cts.		26.25
130 Perches, 16½ ft. to perch of stone, laid at $1.50.		195.00
12,000 Bricks, laid at $12.00 per 1,000		144.00
1,400 Yards Plastering, 2 coats brown, 1 white, at 20c.		280.00
Stone Steps, etc., $10.00; Center Pieces, etc., $25.00.		35.00
4 Marble Shelves with Brackets		30.00
Painting and Material		250.00
Wood-burning Furnace with Pipes, etc		150.00
Bath-room Fixtures and Plumbing		75.00
Nails, $40.00; Gutters, etc., Tin Work, $35.00		75.00
Doors, Windows and Blinds, with Trimmings, etc.		125.00
200 lbs. Tarred Paper, at 7 cts.		14.00
Extras and Incidentals		22.57
Total Cost		$3,100.00

Bee Notes for August.

In many parts of the country there is a great dearth of nectar-bearing flowers this month—only enough to keep the bees at breeding. If the bees secure no honey, they should be fed sparingly, a very little each day, so that the queen may not stop laying. In this way the brood rearing can be kept up, and there will be abundant bees to secure a rich store of autumn honey, and insure safe wintering. If the queen once stops laying, it is often very difficult to start her again. Some bee-keepers say that feeding does no good, as upon trial the queen still refused to lay. In all such cases the feeding was commenced too late. We have tried experiments in this direction for many years, feeding part of our colonies, and omitting to feed others, and have always found the importance of feeding abundantly demonstrated.

Robbing.

Whenever the bees are not gathering honey, their industrious instincts lead them to become free-booters, and, robbing once commenced, woe to the weak colonies of the apiary. Nuclei are also very likely to fall a prey to these pillagers. Nothing more quickly induces robbing than the spilling or leaving of any honey or syrup about the apiary. Let the bees once get a taste, and they become ravenous, and are at once on the rampage to appropriate the property of others. Such a spirit of plunder may also be engendered by too frequently opening the hives during these times of enforced idleness. The colony robbed should have the entrance nearly closed, so that only one bee can pass out at a time. Then almost any colony will defend itself, unless it has become entirely dispirited, when it must be closed up entirely, or carried into a cool room for a time. If closed, give sufficient ventilation, that the bees may not smother.

Strong colonies are those that bring profit, and such will defend themselves against robbers at all times. The Italian bees are far less liable to suffer from robbers than are the blacks, while the Syrians are rarely thus troubled. Robbers that attack a Syrian colony find they have "caught a Tartar."

NOTES.—The Syrian bees are more than sustaining their reputation. They have all of the points of superiority possessed by the Italians, magnified, except that of amiability, and as they are handled, they are becoming very manageable. This year our queenless colonies are very peaceable, while last year they were exceedingly irritable. Their late and early breeding are points in their favor. For prolificness, they are marvels. They are superior in the points where Italians fail; they are slow to leave the hives on very windy days, a trait which natural selection would develop in the windy regions of Syria, and they are ready to go into the sections to store their honey.

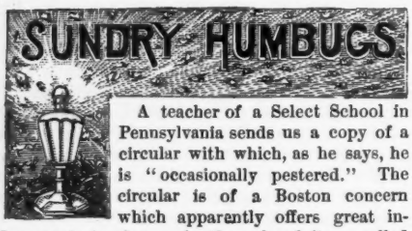
The National Bee-Keepers' Association will meet in the Washington Park Hall, opposite the Exposition Building, in Cincinnati, Ohio, October 3d to 5th. Everything indicates that this meeting will be one of the best ever held in the world. Every bee-keeper should arrange to attend, if possible.

Our Waning Forests.

In all the numerous articles that have fallen under our notice about the destruction of our forests, we have never seen any doubts expressed about the facts in the case, or anything hopeful upon the other side of the question. The impression left upon the mind of the reader is, that every acre of woodland cut off is never renewed without artificial means, and that the country is doomed to barrenness in a few generations at the longest, by reason of the disappearance of our forests. It takes so many millions of acres for fuel, still more for lumber, millions for railroad ties, agricultural tools and machines, lasts, shoe pegs, matches, boxes for packing, etc., every year, and at this rate, the country is soon to be denuded of its forests, the streams dried up, and our agriculture and manufactures depending upon water-power are coming to ruin in a very short time. This is the picture as it is presented to us by the city editor, as he looks at things from his sanctum. It is about time this nonsense was exploded, and the facts in the case stated as they appear to us wood-choppers and clod-hoppers in the country. It is undoubtedly true that there has been a great decrease of forests in the old seaboard States, since the first settlement of the country, for that has been a necessity, without which there could be no agriculture, and not much increase of population. It took at least a hundred years in these States to remove so much of the forest as was an obstruction to agriculture. Not more than one-fifth of the area of a country need be left in wood, to secure its highest productiveness in farm crops. This point has not yet been reached in some parts of the seaboard States, yet in other parts it has been somewhat passed, and there is a deficiency of wood for fuel and timber. The alarmists overlook the most important fact that very much of the timber land that is cleared in the older States is very soon renewed by natural agencies. There is a regular system of growth and clearing, and timber and fuel are as much reliable money crops as corn and potatoes. On fair, average soil, a forest will renew itself once in twenty-five years. It would probably pay better to stand thirty or forty years, but it is available, and can be turned into ready money every twenty-fifth year. A farmer with twenty-five acres of forest can clear an acre every year, with no diminution of woodland. In the rural districts of Connecticut, with which we have been familiar for the last fifty years, there has been no waning of forests. Ship-timber, near seaports, has grown scarce and high, but the price of wood for fuel is no higher, and in some markets is even cheaper than it was fifty years ago. The Census shows that, in the exclusively agricultural towns, there has been no increase of population, and in some of them a decrease during the last 40 or 50 years, so that there is no more demand for fuel and timber to-day than there was in the days of our grandfathers. Wood for fuel, except in the shape of kindlings and charcoal, has gone out of use in our cities and villages on the seaboard and along the line of our railroads. Farmers, not a few, within four or five miles of these villages, are beginning to use coal, and the base-burner, once in the parlor or sitting room, soon drives out the wood fires and stoves from the rest of the house. Coal is found to be far cheaper, and a cleaner and more convenient fuel than wood, even for those who own wood lots. Kerosene is also becoming available for heating, and we see no prospect in the future that wood for fuel will ever be any more in demand than it is to-day. It is doubtful if it ever will be dearer for lumber. Iron is taking its place in ships, bridges, machines, houses, and public buildings, and the demand for iron, stone, brick, as the most desirable materials for building is likely to increase as the country increases in wealth. In some of these rural districts there is more danger of a relapse into wilderness and barbarism, than of exterminating our forests for the advance of high farming and civilization. In 75 of our farming towns there was a decrease of 12,000 in population during the last decade, which means an increase of woodland. In a ride of an hour, yesterday, in one of the towns bordering on the Connecticut River, we passed six old chimney stacks and cellars, the sites of deserted homes, the road for much of the way bordered by forests. Even in the Nutmeg State, where we use some superfluous wood, it is difficult to feel the alarm about waning forests. CONNECTICUT.

Keeping Off Insects.—"T. B.," Wilkesbarre, Pa., says that he has for years used and still uses the following for keeping insects from his Beans, Squashes, Tomatoes, and other plants: When the seeds are put in the ground, or the plants are transplanted, he puts a few lettuce seeds in the hill, or puts some lettuce plants there. He says that this will keep off the bugs, "and no mis-

take." Probably this gives the insects tender and acceptable food; they eat the lettuce, and let the other plants alone.



A teacher of a Select School in Pennsylvania sends us a copy of a circular with which, as he says, he is "occasionally pestered." The circular is of a Boston concern which apparently offers great inducements to engage in the sale of its so-called "Silverware." These are shrewd fellows, for they "put on airs," and caution the public against other concerns in the same trade. Boston seems to be the headquarters for a lot of dealers who should be let alone. If one buys silverware at a price below the real value of such articles, he deceives himself. Many prefer to purchase plated ware, as the loss in case of robbery is less, and if good at the start, it will last in use for many years. Genuine plated ware is to be had, but

The only Guarantee

for the quality is the reputation and *honesty* of the maker. To the inexperienced thinly plated ware *looks* as well as that of better quality. Our advice is, to buy such articles only of regular dealers whose word may be taken as to quality, and to let alone all those "Companies" who profess to offer wonderful bargains in plated ware.

Variety Circulars.

These pernicious sheets are sent far and wide. The chaps who issue them get hold of the school and college catalogues and mail them to the students. Parents should be on their guard, and know what kind of printed matter their sons and daughters receive by mail. It is within our own experience that matter of the vilest kind is sent to mere children, and even directed to the care of their parents. We have before us one of these sheets, issued in a small town in Massachusetts. It offers various books, of a kind that, judging from their titles, young people ought not to have. Among other works are: "The Real Secret Art and Philosophy of Wooing, Winning and Wedding." There is a long list of contents, which promises the knowledge of many "mysterious things." Then there is "Old Aunt Dinah's Fortune Seeker's Sure Guide to Lucky Dreams and Lucky Numbers"—which is merely a guide to "policy" gambling. Other works, apparently innocent in character, are offered, but the general tenor of all is decidedly bad.

"The ** Corresponding Club"**

still sends out its pernicious circulars, proposing to bring people into correspondence "With a view to Mutual Improvement, Amusement, or Matrimony." This thing should be stopped. No doubt the postmaster at the small place whence these circulars are issued knows of their contents, and we advise him to promptly stop sending them to save trouble.

"The American Marriage Alliance"

still continues its circulars. We confess that we have little patience with those who inquire about the responsibility of these "Marriage Insurance Companies." If there is anything in this world too sacred to be a subject for gambling, it is marriage. We do not care whether these concerns will do what they propose or not. Any one who will take stock in them, does not deserve a good wife. We can not say if the Ohio concern is more reliable than the Pennsylvania shop. Our advice is, to let them all alone.

Accusing the Wrong Man.

We have in illustration of this a letter headed in large letters, "Fraud," which accuses one of the best known nursery firms in the country of sending through their agent, whose name and address is given, many hundreds of fruit trees which were bought for choice varieties, but which will prove to be a fraud. The writer claims that the nurserymen referred to have sent out a lot of "culls" and refuse stuff, and asks us to come and investigate the matter. There are some persons, even in the nursery business, who have a reputation above suspicion; and as the trees in question have passed through other hands, we advise our complaining correspondent to look to these parties for redress. We are sure that the nursery firm he accuses will give proper attention to any respectful complaint.

Electricity and Magnetism

turn up in a great variety of forms. One can not walk far upon the streets without having thrust into his hands a circular of some "Electric" or "Magnetic" affair. We have a circular of a "Magnetic Shoe," which is not only to prevent "Hot or Cold Feet," but is to prevent Corns, Bunions, and all sorts of feet ailments. But what are these partial affairs to those garments, of which there are several, with formidable looking eyelets, which propose to envelop the whole body with a "Magnetic," or "Electric," or "Galvanic," or some other ——"ic" influence? There are some diseases, which, as experienced physicians well know, are best treated by amusing the patients. It is probably in thus amusing the patient, that these various gimcracks may seem to have a use.

"Medical Matters"

always make up a goodly share of our Humbug correspondence. Some of these it is impossible for us to answer. For example, a correspondent on L. I., asks if he shall take the agency of a certain "Pad." He assumes that we know all about the thing, and sending no circulars, inquires "whether it is a fraud or not." As we do not know what the "pad" is made of, we can not advise him. If he does not know what it is, he had better let it alone. It is a peculiar human weakness, to believe that something from abroad, in the way of medical treatment, must be better than that which can be had near home. Quacks understand this, and those who live in large cities, advertise extensively in distant papers. As a consequence, we get inquiries about parties who make great claims as physicians, who are not known in New York as practising medicine, and who, when hunted up, are only to be found in some obscure place. We recently had an inquiry of an advertising doctor, who claimed to be

A MEDICAL INSTITUTION,

and as he gave us his address, a place not very far from our office, we made a call at the place. The address of the individual who represented the "Institution," had been changed. At the time of our inquiry, he could have been found on Centre Street, at a public house called "The Tombs," where he was confined on a charge of sending obscene literature through the mails. Our friend who wishes us to "find out if the Institution is all right or not," is advised to consult the nearest physician for his "liver trouble," as he may be sure that those doctors who live in New York, and other large cities, and are trustworthy, do not advertise in distant, or any other papers, nor do they call themselves "Institutions," "Universities," or "Dispensaries."

Journals at a Distance

are becoming cautious in the matter of accepting advertisements. Instead of complaining that they have been swindled by this or that advertiser, they now ask, before publishing the advertisements, if the parties are reliable. An inquiry from publishers in Canada, concerning some patent medicine chap, was recently investigated. Our associate reports that he found the number indicated, but that the only "medicine" dispensed was Lager Beer. Many of those who advertise so loudly at a distance, can only be found at such obscure places, and we are glad to know that our friends who publish journals at a distance, are exercising care.

David's Prize Soap—[Lottery?]

When the eminent chemist, Liebig, asserted that the degree of civilization reached by a nation could be measured by the amount of soap it annually consumed, he had not heard of this remarkable soap of David. Ordinary common soap indicates that a nation is given to cleanliness, but David's soap carries with it no end of luxuries. A show-bill of this soap is a wonderful work in black and red ink, and second only in its absolutely "stunning" character, to the announcement of a circus or a horse-race. This show-bill offers to buyers of the soap, a remarkable list of prizes, to be given away—not at a "drawing"—oh no! but at a "presentation." Among the prizes are a "Brick House and Lot," United States Bonds, Horses and Carts, Gold Coin, Pianos, Diamond Jewelry, Watches, Tea Sets, and numerous other things, down to Velocipedes and Refrigerators. This is not a regular lottery, but the wrappers call for tickets, which are not sold, but are given away as a "reward for using David's soap." David makes a handsome show-bill, and displays much ingenuity in trying to get around the law against lotteries. David's tickets have been seized, and the proprietors of the lottery have been arraigned before the courts, but a decision in his case, has not, at our going to press, been rendered. All former decisions show that this soap-prize distribution, comes under the law against lotteries. The fact that the gambling is concealed under the name of a "presentation," has not been of any avail in other cases of a similar kind. Indeed, the courts have regarded as an aggravation of the offence, this attempt to associate a lottery with an article in common use in every household, as it familiarizes domestics, children and others, with a most pernicious form of gambling. The suit against the soap-lottery will be pushed, and when we learn of the decision, will make it known. In the mean time, it is interesting to know that all former decisions have been most emphatically against this form of gambling.

An Organ[ic] Trouble

turns up every now and then. Certain country journals, attracted by what seems to be a liberal offer, advertise the Piano and Organs of "the Mendelssohn Piano Co," to the amount of $35, which will entitle the publisher to a "Home Jubilee Organ," of that price—if he can get it—or the amount ($35,) can apply to a higher-priced instrument, the balance to be paid in cash. This proposition to give

AN ORGAN IN EXCHANGE FOR ADVERTISING.

seems to be a one-sided affair. The parties get advertising, but the advertisers get no organs. There does not seem to be any $35 organs; the company claim to have so many cash orders for other and more costly instruments, that they do not get any chance at these cheap organs; but they are always ready to accept a "balance in cash," and send any other style of organ at a higher price. We exposed this trick some months ago.—If the publishers of country papers had taken the warning we then gave, they would not now be asking us to help them get the promised organ.

Inheriting Foreign Money.

There are many thousands of people in this country ready to indulge in hopes of falling heir to the property of some deceased distant relative in Old England. Scores of thousands of dollars are every year spent in investigating these illusive claims, and certain parties accumulate wealth by fostering such notions and pretending to have special facilities for investigating them. We have yet to hear of the first success in actually securing the hoped-for money from such sources.

"Next of Kin" Swindle Successful in England.

There have just come to light extensive frauds in the vicinity of Birmingham, England, by means of which multitudes of persons have been swindled out of small and large sums, amounting to a great many thousands of dollars in the aggregate. A company styling themselves "The International Law Agency," avowedly established to discover the heirs and next of kin for receiving $27,750,000 at present in Chancery awaiting claimants. A suite of offices was rented in Birmingham, and branches announced in London, Manchester, Glasgow, etc., with important "agencies" at *New York*, and Melbourne, Australia. Advertisements were sent out inviting all parties bearing the common names of Smith, Johnson, White, King, Wood, Roberts, Wright, Scott, Ward, Mason, Green, Griffith, Davis, etc., to send their address, lineage, etc., with a small remittance to cover preliminary expenses—perhaps only a postage stamp or two. From the great number of answering people, a host of victims were

selected, and they were led on by correspondence, by claims to have found them in the line of certain success in securing sums of $10,000 to $100,000. Of course frequent calls were made for funds to prosecute the claims. People hunted up their baptismal and marriage certificates and family records, and often sold their most necessary articles of clothes and their furniture, to raise the sums needed by their "International Law" counsel. Of course every one maintained great secrecy, so as not to bring in contestants; and thus the swindling went on, until finally discovered by the officers of the law, who took possession of the premises, and found a vast mass of correspondence, etc., to show that the scheme had grown to immense proportions.

The "Pillow Inhaler,"

alluded to in our July issue, it is claimed, possesses healing virtues. The proprietor writes us from Philadelphia: "Such men as Dr. D. Hayes Agnew have commended the idea of the Pillow Inhaler, and we are putting them out on doctors' orders right along. There is not an atom of humbug about the Pillow."

The Ozone Bulletin

continues to be sent out; it still claims to be "Published Monthly," but does not tell us in what particular month. It issues an extra, or supplement, in which it states that, having seen "unjust criticisms on Ozone," they publish a lot of certificates, and offer to forfeit "One Thousand Dollars for each and every one of which we can not show you the original autograph letter." We suppose that our criticisms are regarded as "unjust," but why don't they publish them? Our objection to this fraud is, that it is obtaining money under false pretenses. It is selling as "Ozone," at a high price, common Brimstone, or

FLOWERS OF SULPHUR.

Whether it will preserve this or that, as the certificates claim, has nothing to do with the question. That Sulphurous Acid (Sulpurous Anhydride, $S O_2$) will preserve various animal and vegetable substances, we are well aware, and have never denied. The miserable fraud consists in selling under the name of "Ozone," for $2, the same stuff that, under its proper name, Sulphur, can be bought for 10 cents or less.

THE VAPOR OF BURNING SULPHUR

may be used to preserve various articles, and has been so used for many years. Our own examination, and that of our friend, Dr. Robert Warder, of Ohio, show unmistakably that this so-called "Ozone" is only common Flowers of Sulphur, colored. It is *not* Ozone, it is *nothing like* Ozone, and the selling of it as Ozone is one of the most barefaced frauds of the day. Every one who has bought a parcel of the stuff has good cause for a suit against this "Ozone Preserving Company." The law is strict in New York State, and we would suggest to this company to read up the statutes relating to obtaining money under false pretenses.

Rennie's Pain-Killing Magical Oil.

Sometimes the stories of the discovery of remarkable remedies are full of interest. We have not of late met with any quite so thrilling as that under the above name. There are seven large pages of oriental adventure: Kristodas, the oriental snake charmer; a journey down the Hodgly; the mangoose; lions—real man-eaters, and all sorts of thrilling eastern things contribute to the discovery of this "Magic Oil." Seven pages of story to one page of certificates of its cures, show that this oil has a green-hand at the helm. Being a "Magical Oil," of course there is no end to its possibilities.

A Lost Sister Found.

On opening the mail one morning recently, we found the following communication: "Editor *Agriculturist*.—DEAR SIR.—I am a farmer and subscriber to your paper. I am too poor and too sick to undertake a journey to New York on this most urgent matter, to which I imploringly call your attention. My sister, Mrs. ———, is now detained at No. — Mulberry Street, N. Y. She has several children with her. She was decoyed from her home at ———, Miss., by a good-looking man, by the name of ———. She had started to join me at this place. ——— had her baggage marked to himself in New York, got some of her money, and keeps it."—We at once sent to the house designated, and found the missing sister in company with another sister. The latter had been abandoned by a brute of a husband, who had brought them both from Miss. to New York, and then decamped, leaving them in a state of starvation. The women are very ladylike in their demeanor, and have conducted themselves with the utmost decorum at the house where found. We hope by the time this paper reaches its readers, they will have reached their brother's Nebraska home, having the wherewith supplied them for making the journey.

Preventable Losses on the Farm.

BY WALDO F. BROWN.

It is a "penny wise, and pound foolish," system, to breed from scrub stock. There is not a farmer in this region who has not access to a pedigreed Shorthorn bull, by a payment of a small fee of two to five dollars, and yet we find only one animal in ten with Shorthorn blood. It is a common practice to breed to a yearling, and as he is almost sure to become breechy, to sell him for what he will bring the second summer. Many farmers neglect castrating their calves until they are a year old. I think ten per cent are thus permanently injured, must be classed as stags, and sold at a reduced price. Fully half the calves so stunted never recover.

With many, the starving process continues through the entire year. They are first fed an insufficient quantity of skim milk; then in July or August, just at the season when flies are at their worst, and pastures driest, they are weaned, and turned out to shift for themselves, and left on the pastures until snows fall, long after the fields yield them a good support. They are wintered without grain, spring finds them poor and hide-bound, and the best grazing season is over before they are fairly thrifty.

The keeping of old cows long past their prime is another thing which largely reduces the profits of the farmer. We have found quite a large per cent of cows, whose wrinkled horns and generally run down condition, show that they have long since passed the point of profit. A few years ago, these cows would have sold at full prices for beef, now they will sell only for Bologna at 2 cts. per pound. Thus cows have, in a majority of cases, been kept, not because they were favorites, or even because they were profitable, but from sheer carelessness and want of forethought. Another fruitful cause of loss to the farmer, is attempting to winter more stock than he has feed for. Instead of estimating his resources in the fall, and knowing that he has enough feed even for a hard winter, he gives the matter no thought, and March finds him with the choice of two evils, either to sell stock, or buy feed. If he chooses the former, he will often sell for much less than the animals would have brought four months earlier, and if the latter, will usually pay a much higher price for feed than if it had been bought in autumn. Too often he scrimps the feed, hoping for an early spring, and so soon as he can see the grass showing a shade of green around the fence rows, or in some sheltered ravine, turns his stock out to make their own living. This brings one of the most potent causes of unprofitable cattle raising; namely, short pastures. The farmer who is over-stocked in winter, is almost sure to turn his cattle on his pastures too early in the spring, and this generally results in short pasture all summer, and consequently the stock do not thrive as they ought, and in addition, the land which should be greatly benefited and enriched, is injured, for the development of the roots in the soil, must correspond to that of the tops, and if the latter are constantly cropped short, the roots must be small. The benefit of shade is lost, and the land is trampled by the cattle in their wanderings to fill themselves, so that it is in a worse condition than if a crop of grain had been grown on it. From all these causes combined, there is a large aggregate of loss, and it is the exception to find a farm on which one or more of them does not exist, and yet without exception, they may be classed as "preventable," if thought, and practical common sense are brought to bear in the management.

A Paper To Keep Ten Years.

At least a hundred hours of severe mental work have been expended upon four pages of this August number of the *American Agriculturist*, (pp. 328, 329, 330, and 346). They will be found not only interesting, but very valuable for frequent reference, as no equally comprehensive and accurate summary can be had again before 1892. The facts set forth have been gathered, collated, and condensed, partly by the aid of advanced sheets from the Census Bureau, partly from correspondence, and partly from numerous speeches in Congress on tariff, taxation, etc., etc., by Senators and Representatives, who have direct access to, and assistance from the Census records, not yet made fully known otherwise.

With these four pages before one, he can, at a moment's glance, know where to find the greatest amount of any farm product, of animals, etc., and what is the leading agricultural industry of any State or section of the country. It will be worth while to obtain an extra copy or two of this number, cut out these pages, and paste them in a reference book. The figures, etc., without the grouping, unless our plan is adopted, will be found scattered through the Census Reports when fully published, but they will be too bulky for convenient reference, or for universal or even general distribution.

On page 328 will be found not only the total number of Farms in the United States, but in each individual State and Territory, and also the number of each of eight different classes as to size, and also how they are cultivated—by owners, by renters, or on shares. Then follows a dozen groups, showing the relative standing of the States, in each class of farms, the farms per acre, the number of families, of dwellings, etc.; also the product of milk, butter and cheese in the leading dairy States.

On page 329 is a complete exhibit of all Farm Animals (quadrupeds) in the whole country, and in each of the 47 States and Territories, with a grouping of the States in respect to the number of each kind of animals. Most people will be surprised at some of the results. For example, we recently asked a dozen or more intelligent men: "Which State has the most Swine?" and every one promptly replied, "Ohio, of course," forgetting, or not knowing, that Chicago, instead of Cincinnati, is the present "Porkopolis," and her largest supplies come from Iowa, as any one would readily believe on going west from Chicago, and seeing the miles of freight trains bound eastward, loaded with the black-haired porkers. Iowa has nearly a million more Hogs than any other State, and in this nearly doubles Ohio, which ranks fourth in Swine production, though at the head of all in the total number of all farm animals, having over ten and a half millions of them.—Few would assign to New York 66 per cent, or 571,942 more Milch Cows than any other State; or put Pennsylvania in the fourth rank; or would write down Ohio as the greatest Sheep growing State, and California as next; or suppose that five States and one Territory have more Sheep than all the other forty-one. Other like surprises will be found in our record.

On page 330 are grouped the leading Grain-growing States, the acreage of the principal crops, the total product, and the yield per acre in all and in each, with such striking facts as, that six States alone supply half of all our Wheat; or that three States grow within four per cent of all the Indian Corn raised; or that all New England grows less than one-fifth as much Rye as the single State of Pennsylvania; or that New York yields three eighths, or 38 per cent, of all Buckwheat grown, and that New York and Pennsylvania produce seven-tenths of this crop.—Numerous other interesting and surprising comparisons will be found, or suggest themselves, in the larger tables.

Finally, the variety of facts we have prepared and condensed upon page 346, will be both entertaining and valuable to all for future reference.

The Large Grapevine Caterpillars.

Whoever works among grapevines, is sure to make the acquaintance of various insects. Some of these are described upon other pages. Early in

Fig. 1.—HOG-CATERPILLAR OF THE VINE.

the season, one will meet with several small caterpillars, but in August, and later, he will come across creatures so large and so voracious, that he is glad that they are so few. The Sphinx family of moths are very noticeable in the perfect state; on account of the large size of some of them, they are often mistaken for Humming-birds. So beautiful are they in their colors and markings, and so agile are they, as they flit among the flowers, that one does

Fig. 2.—MOTH OF HOG-CATERPILLAR.

not associate the idea of mischief with these attractive insects. But those who have studied insects even but slighty, must know that however attractive one may be in its perfect state, there has been a time when the same creature was without wings, but barely crawled from place to place, and bore a form that by common consent is called a "worm." A number of these large caterpillars feed upon the grape in different parts of the country. They are most voracious feeders, and their greedy habits soon betray them; they void such quantities of excrement, that their presence is readily indicated by their droppings, and, if the vineyard is kept free from weeds, as it should be, these accumulations of pellets of excrement will lead to their detection. These caterpillars are so nearly of the same color as the foliage or as the stem of the vine, that they might often escape notice, were it not for the tell-tale droppings. One who once witnesses the rapidity with which they feed, will be grateful that they do not come in hordes, but are solitary. The most frequent of these large caterpillars, in western vineyards at least, is called by the not very elegant name of "The Hog-Caterpillar of the Vine." The young caterpillar is pale-green, with a long, straight horn at its tail-end. As it increases in size, and undergoes its changes of skin, the horn becomes shorter, and has a curve, as shown in figure 1, which represents the full-grown worm. Its name, Hog-caterpillar, is due to the fact, that while the first and second rings are small and can be drawn in, the third and fourth rings are much enlarged, and the fore-part of the worm has a resemblance to the fat cheeks and shoulders of some of the improved breeds of swine. The general color is pea-green when full-grown, and is marked with pale-yellow dots. It has an oblique cream-colored band along the sides, as shown in the engraving. When full-grown, and about to transform, the color changes to pinkish-brown. It descends to the ground, and there, under any rubbish it may find, forms a cocoon in which it becomes a chrysalis, from which, in time, it comes forth as a fleshy-gray moth, shaded with olive-green, as in fig. 2. In Northern localities, the moth is one-brooded, but in Missouri, and southwards, there are two broods, the last appearing in August and September. Like other large caterpillars, this is attacked by a parasite, which deposits its eggs within its body, and the larvæ hatched from these so far weaken it that it cannot make its changes, and produce a perfect moth. For this, and all other large caterpillars of the grapevine, hand-picking is a sufficient remedy. The entomologists' name for this insect is *Chærocampa pampinatrix*. Passing by the Achemon Sphinx (*Philampelus achemon,*) the Abbot Sphinx (*Thyreus Abbotii,*) the large caterpillars of which feed upon the vine in various parts of the country, we notice the Satellite Sphinx (*Philampelus Satellitia,*) more generally distributed than any other. These grapevine caterpillars, it should be stated, are found upon our wild vines, and most of them feed upon the Virginia Creeper (*Ampelopsis quinquefolia,*) a close relative of the grapevine. Figure 3 gives this caterpillar of the Satellite Sphinx at different ages. When this caterpillar is first noticed, it has a rather conspicuous horn, as shown at the top of the engraving at *c;* at this time it is green, with a tinge of pink along the sides. As the worm grows, its horn becomes shorter, and is finally lost entirely. When it is full-grown, this caterpillar is nearly four inches long, and when moving, appears as at *a*. It is pinkish or flesh-color at first, but ultimately becomes a rich, velvety, vinous brown. It has a habit when disturbed of flinging its head from side to side, in a manner that alarms timid people. When at rest, it draws the first two joints of the body into the third, which gives it the appearance out-lined at *b*. When about to transform, it goes a short distance into the ground, and becomes a chrysalis, in which state it remains until the next year, when it appears as the beautiful olive-gray moth, with dark olive-green markings, shown in fig. 4.

Fig. 4.—SATELLITE SPHINX (*Philampelus satellitia*).

A Scarecrow that never Fails.—Our correspondent "C," writes us: "There has been much complaint on all farms favored with forests, of the depredations of crows in the corn field. Much time has been spent in replanting, and if town meeting was called at this time, any amount of money would be voted as a bounty on crows. Higgins says he is glad of it, for he has a remedy that he has used for twenty years, and never known it to fail. A kernel of corn enveloped in the thinnest covering of gas tar, is as secure against crows, as if it were in the crib. A great many intelligent farmers have used it, and it secures the safety of the springing corn from the attacks of birds. The smell is offensive to them, and they will not scratch where it is. The remedy has been published in our farm

Fig. 3.—CATERPILLAR OF SATELLITE SPHINX.
a, Mature Larva: *b*, At Rest; *c*, Young Larva.

journals, from one end of the land to the other. And yet farmers who see crows every day, and suffer more or less every year from their visits to the corn fields, use the old scarecrow and suffer loss. Ten cents worth of gas tar would save their crop."

Pine-Tar on Fruit Trees.

A correspondent at Basking Ridge, N. J., asks if it will be safe to apply pine-tar to the lower part of the trunks of peach and apple trees, to keep off the borer. We should not risk it; stone fruits, especially, are readily injured and often killed by such applications made directly upon the bark. All that the tar would accomplish—preventing the female moth or beetle (for the peach-borer is the young of a moth, and the apple-borer the larva of a beetle,) from laying her eggs. Whatever may be expected from the use of tar, will result from the application of soap, which is perfectly safe. The earth should be well removed from around the base of the tree and the trunk, down to the main roots, rubbed with new bar-soap, or soft-soap may be thinned with water and applied with a brush. This application must be renewed, if it is washed off by rains. The base of the tree may be surrounded with a piece of tarred roofing-paper, its lower edge well below the soil, and its upper edge six inches or more above it. If such paper is not at hand, any stiff, coarse paper may be used in the same manner, and a coating of tar, if desired, applied to this. Probably no such applications will be so complete as to make it unnecessary to examine the trees towards autumn for borers that may have entered in spite of all preventives.

A Straw Puller.

"H. M. S.," Randolph Co., Ind., uses a hay hook which he made as follows: "Select a natural fork, such as may be found on the limbs of many saplings growing in the forest. The fork is trimmed to a sharp point,

A STRAW PULLER.

and with the long handle made from the limb, one has a cheap and handy hook for handling straw and hay."

Forage Crops of the South-West.

PROF. G. C. SWALLOW.

In the *American Agriculturist* for April, I spoke of the great value and importance of the Herbage Crops of the South-West. I now call attention to the Forage Plants, crops which are second only to the former in their value and importance to our farmers. A very large proportion of our herbivorous domestic animals live almost entirely on herbage in pastures, yet a vast number of horses, mules, cattle, and sheep are fed the whole or some part of the year, on forage and other harvested products of the farm.

FORAGE PLANTS OF THE SOUTH-WEST.—There is a great variety of these, both native and naturalized, cultivated in this region. There seems to be a very general impression that the grasses and other Forage Plants do not grow so well in the South and South-West, as further north. But after examining the whole subject very carefully, I am forced to the opinion, by what I learn from others and from my own experience and observation, North and South and West, that the South-West and South are the best portions of the Union for Forage Crops.

LUCERNE is perennial, and one of the best Forage Plants for the Southern part of the South-West. It is very nutritious and well relished by sheep, horses, cattle, and mules, which prefer it to most kinds of forage. It sends its tap roots deep into the soil, grows rapidly, and produces from two to four crops annually, yielding from three to five tons of of hay per acre. It furnishes good pasturage, but is greatly injured or killed by the close cropping of sheep and horses.

BERMUDA GRASS is an excellent forage as well as herbage plant. It is perennial, and will, in pasture, feed more stock than most other grasses. The green grass makes about one-half its weight of hay, which is readily eaten by animals. It grows freely on poor land, and rapidly improves its fertility. But some dislike it because so difficult to eradicate when the land is used for other crops.

SORGHUM.—Several species or varieties of this perennial grass furnish good forage in the South-West. But *Sorghum Halepense*, sometimes called "Johnson Grass" and "Mean's Grass," is most esteemed. It grows from 5 to 10 feet high, and is very productive, and may be cut from two to four times each season, yielding one or two tons per acre at each cutting. This Sorghum is rich in saccharine matter, very nourishing, and is eagerly eaten by sheep, cattle, horses, and mules. *Sorghum nutans*, or Wild Sorghum, has attracted much attention in Arkansas, Missouri, and Kansas, and is one of the native grasses which give prairie hay its superiority over that of our foreign grasses. I have sometimes ridden through this native Sorghum on the bottom prairies of Missouri and Kansas, where it was so tall and thick as to conceal a horseman or an elk thirty feet away. Our native Sorghum has not received that attention from our farmers which it seems to deserve.

INDIAN CORN has furnished more forage to the farmers of the South-West than any other plant. It is grown more extensively than any other crop, primarily for its grain and incidentally for its excellent fodder. But few in the South-West, grow it, strictly speaking, for forage, though it be nutritious and eagerly eaten by all herbivorous animals, either green or cured. Indian Corn is by far the best gift of our American flora, and it becomes more and more indispensable as its good qualities are better known. Many a hale and hearty octogenarian still blesses and eats the corn-cake that made his youth strong, his manhood vigorous, and his old age hale and hearty. So many a bullock and many a porker show the increase of muscle and fat, due to the corn they have eaten. But this pertains to another department of my subject. The stalks, cobs, shucks, leaves and tassels furnish our farmers with a very large proportion of their forage—many, in fact, depend upon the so-called corn-fodder, for nearly all the forage, or "roughness" to take their horses, cattle, and sheep through the winter; while others use it in connection with hay, straw, and herbage for winter food. The best forage obtained from corn raised primarily for the grain, is the leaves stripped, dried, tied in bundles and housed for use. This kind of fodder takes the first rank in our catalogue of forage; but the labor is so great that but little is thus prepared. The next best kind is prepared by cutting the stocks above the ears ("topping") while still green, drying, tying, and housing as was once the general custom in New England. This also requires too much labor for our modes of farming. But the more common mode, where the fodder is much desired, is to cut up and shock, corn and all, while the stalks and leaves are yet green. When cured the corn is husked, and the fodder left out in shocks for use as needed. When well cured at the proper time, the fodder is very good, and eagerly eaten by cattle, horses, and sheep. When, however, the forage is not so much in demand, the stalks are left standing in the field, and after the corn is gathered, the cattle, horses, and pigs are turned in to glean the nubbins and inferior fodder. Many herds are thus taken through the winter.

OATS are very extensively cultivated for forage. They are sown as early as the soil will permit. They are sometimes cut, cured, stacked, and used as hay. Others tie them in sheaves as other cereals. When the grain is threshed the straw is used as hay. But the sheaves are often run through a straw cutter and fed—grain and straw together. Prepared in this way, oats make the best forage known to the South-West for horses.

WHEAT is extensively cultivated for the grain; but the straw is sometimes used as forage. Farmers dispose of the wheat straw in various ways. Some burn it as fast as threshed, others place it in gullies to stop the wash, or allow it to lie on the ground until partly decayed, and then spread it for manure; others still use it to make temporary sheds for stock; but the greater number of farmers preserve and feed it out during the winter. If the wheat is free from rust and other diseases, and is cut at the proper age, and well preserved, the straw and chaff make an excellent forage for winter.

RYE AND BARLEY are grown in small quantities for the grain. The straw, though esteemed inferior to that of wheat, is often used for forage. A common mode of using it is to put it in long ricks in such form as to serve as a protection from wind and storm; and then permit the farm animals to seek its shelter, and eat as hunger dictates.

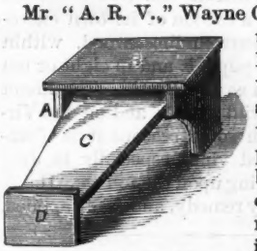
The Layering of Shrubs.

Layering is the simplest of all methods of propagating, and one which the amateur who wishes to multiply his shrubs, and is without the facilities afforded by a propagating house, most frequently resorts to. Indeed there are some shrubs that can with difficulty be propagated in any other manner; the Dutchman's Pipe (*Aristolochia*), for example, is treated in this manner in the nurseries, and the charming little Garland Flower (*Daphne Cneorum*), so difficult to grow from cuttings, roots readily when layered. As stated last month, there are some varieties of the Grape that can only be propagated in this manner, and the usual method of layering the vine was illustrated on page 292.

This method is easy with those shrubs that form branches so near the ground as to allow them to be bent down sufficiently to admit of the burying of a portion a few inches below the surface. After the layer is made, care must be taken that the soil does not become dry. A few flat stones placed on the surface will prevent this. Where it is desirable to layer a shrub, the branches of which are too high for the purpose, a flower-pot may be cut in two, lengthwise, using an old saw; then, if need-be, enlarge the drainage hole, and place the pot around the branch, wiring the two halves together. The pot is then filled with good soil, and, if necessary, supported by a stake. Of course the earth must be kept constantly moist. It is well to "ring" or remove a portion of bark from the stem.

Another Milking Stool.

Mr. "A. R. V.," Wayne Co., N. Y., sends us a design for a Milking-stool, one which is both simple and convenient. The side pieces, *a*, *a*, should be about 10 inches high. The pail rests on *c*, which is 2 feet long. The piece, *d*, should project far enough above the board *c*, to prevent the pail from sliding off the front end.



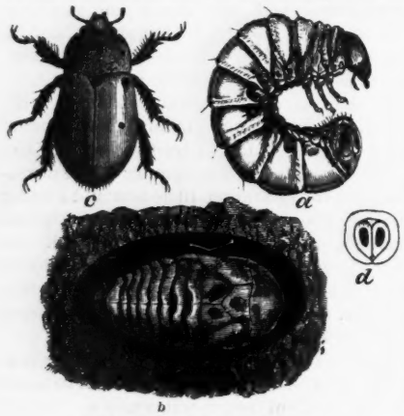
A MILKING STOOL.

Lime Applied to Soils, naturally destitute of it, supplies an essential element of plant food. In most cases, however, the good effects of this substance is due to the chemical action which it exerts in the soil. It renders available the plant food in the soil, with-

out supplying it. Liming is therefore a stimulating process, and can only be practised with success upon soil that is already rich in plant food. Freshly burned lime is the most effective, as it quickly and thoroughly reduces organic matter to an available form. Ground limestone, so highly recommended, is of no special value, except on clay soils, or those destitute of lime, where it acts as a direct fertilizer, and not as a reducing agent.

The Spotted Grape-Beetle, (*Pelidnota punctata*, Linn.)

Whoever works among Grape-vines in almost any part of the country, is quite sure to make the acquaintance of this insect, as it is found from Canada to Florida, and even in the West Indies; it is abundant as far west as Missouri, but what are its western limits, we are not informed. It is the largest of all



THE SPOTTED GRAPE-BEETLE.

the beetles that infest the vine, and is shown in the engraving of its real size. Its color has been variously described as clay-yellow, tile-color, and dull brownish-yellow. There are three black spots on each wing-cover, and one on each side of the thorax; the underside and the legs are of a deep bronzed-green color. The larva of this Beetle bears a close resemblance to the common White Grub, but is of a purer white color, and is distinguished from that by a heart-shaped swelling at the rear end; this is shown separately at *d*. The grub lives in the decayed roots of different trees; while it is not exactly known how long it remains in this state, it is supposed to be for upwards of three years. When it has completed its growth, it forms a cocoon of its own excrement and the surrounding wood, within which it forms a pupa, *b*, and in eight or ten days comes forth as the Beetle. The insect is found on the wild grapes and on the Virginia Creeper; in some seasons it is abundant on cultivated vines, especially in July and August, feeding upon the foliage. Hand-picking is the only remedy, and easily applied.

Tomato Seeds.—These are furnished with an abundance of a slimy mucilage, which many find it difficult to remove. If the seeds are dried as they are taken from the fruit, they will adhere in a mass, and be difficult to separate. Remove the masses of pulp which contain the seeds, place them in a bowl and cover with water. Let them remain where they can be examined daily; fermentation will soon take place, and when the seeds are found to be free from the mucilage, wash and dry them. This will not injure the vitality of the seeds, if the fermentation is stopped as soon as they are clean.

Marketing Fruit and Vegetables.

Those who regularly send their products to the large cities are aware that, in order to meet with a sale, they must conform to the customs of the market. In some western cities, strawberries and other small fruits are received in large trays or drawers, from which they are measured out to the customer. If a New York dealer were to receive a consignment of fruit in this form, he would find it difficult to get rid of it, and it would probably end at the "dump-heap." Those who send their produce to market regularly need no advice in this matter; but it often happens that farmers or others, who are not regular market growers, have an excess of fruit or vegetables which they would like to dispose of. As a rule, if they are near enough to any considerable village or town, especially if a place where there are large factories in which many hands are employed, they will do better to take their produce there than to send it to New York or other large city. In disposing of fruit and vegetables in this manner, a proper attention to appearances will pay. If a farmer has a lot of early apples, he is apt to shake them from the trees, pick them up, large and small, bruised and sound, and throw them all together into the body of his wagon; here, on the way to the place of sale, they are still further bruised, and are not very tempting to the purchaser. Even for a near market, it will pay to present the produce in an attractive manner. Instead of this rude way with apples, let them be picked and assorted, making two grades to take to market, and one to leave at home for the pigs. Instead of throwing them in a heap into the wagon, they should be placed in boxes, baskets, or even barrels, for transportation. It will pay the farmer to have a number of bushel boxes, like that figured in May of last year. These would be most convenient for occasional marketing, and for many uses at home.

If, instead of fruits, vegetables are taken to a near market, equal care should be observed in making a good appearance. Beets, carrots, and other roots should be washed and bunched, tomatoes carefully selected, and placed in boxes, to prevent crushing.

Early apples sent to city markets, if of choice kinds and well selected, will usually bring good returns. They must be gathered before they become soft, and be carefully handled. Half-barrels are convenient packages for these, but they may be sent in bushel crates, which one can make himself.

To Make a Bushel Crate.

Take two end pieces and one middle piece of planed one-inch stuff, each 9 by 15 inches; to these nail laths, 24 inches long, leaving spaces of one inch between them, if for apples and other large articles, but allow less space if string-beans and such small stuff is to be packed. Leave off a few laths until the crate is packed. In packing apples, put them in carefully, shake down gently, and let the crate be so full that some pressure will be required to bring the last laths down to their places.

If a piece of hoop is put around each end of the crates, over the laths, this will allow the air to pass between them, an important matter if the fruit is long in transit.

In sending produce of any kind to market, let both the name of the commission merchant and the sender be distinctly marked upon it, and always advise the consignee by mail of what is sent, and how it is forwarded.

Hardy Perennial Plants.

Hardy perennial plants are, as a general thing, so little trouble, that they are too often treated with entire neglect. Beyond dividing the clumps when they have grown too large they get but little attention. These plants ought not to bloom in the same place in the border for more than three years in succession, whether they need division or not. In autumn, or in very early spring, they should be lifted and reset in another place. Some, especially the Pæony, should always be moved in early autumn; if disturbed in spring, the bloom for that year will be lost. To have perennial plants at their best, the soil must be enriched, a point that is often overlooked. While some of these plants produce little or no seed, others bear a heavy crop. Unless one wishes to save seeds, the flower clusters should be cut away as soon as the bloom is over. This is necessary, not only for the sake of neatness in the borders, but for the good of the plants. Seed-bearing greatly exhausts the plant, and the vitality expended in producing a crop of seeds that are to go to waste, should be devoted to strengthening the plant for next season's bloom. Those beautiful Perennial Phloxes, which now rank as florists' flowers, are given to profuse seed-bearing, and are quite sure to degenerate, and produce smaller flowers and smaller clusters, if allowed to ripen an annual crop of seeds. Those who wish to raise Hardy Perennials from seeds, should recollect that the best time for sowing is as soon as the seeds are ripe. The young plants will usually become strong enough to endure the winter; if they do not, a slight covering of evergreen boughs will take them through safely. Such plants, if set out early the next spring, will usually bloom that year.

A Substitute Gate for a Wire Fence.

Mr. "A. C. C.," Dakota Co., Minn., has a device for opening a passage way in a wire fence. A lever of about 2½ feet long and 2 inches at the larger end, is provided for each

Fig. 1.—FIRST POSITION OF LEVER.

wire. Two half-inch holes are bored in each lever, one two inches and the other eight inches from the larger end. The wood is sawed out on one side of the first hole, making a notch as seen in the engravings. The wires of the fence are cut, and a loop twisted to each end. Insert the loop in the notch,

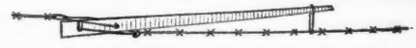


Fig. 2.—SECOND POSITION OF LEVER.

fig. 1, and move the lever into the position shown in figure 2, where it is held with a piece of wire The wires of a fence divided and arranged in this way, may be as tight and secure as before they were cut.

The Black Bass, Northern and Southern.

Those who are fond of fishing do not need to be told what excellent sport the Black Bass affords, or that it is a fish well worth the catching. Indeed it is regarded as a general rule, that the better the fish, the greater the sport in catching it; a saying, the truth of which is strikingly attested by the trout, that easily stands first with both fisherman and epicure. The Black Bass, though less of a game fish than the trout, is a strong biter, and takes the bait with a vigor that gives the greatest pleasure to the angler. While this fish usually runs from one to two pounds in weight, it has been known to reach eight pounds; this is unusual, and even a four-pound bass is rare. On account of its excellent quality as food, the fact that it will live in small ponds, will breed freely, and protect itself from nearly all enemies, the Black Bass is a popular fish for stocking waters that are unfitted for trout, and much has been done within the last twenty years in introducing it in waters formerly occupied by inferior kinds of fish. The young weigh from four to eight ounces when a year old, and after that increase a pound and a half each year. We have spoken of *the* Black Bass, as if there were but one, and most sportsmen and dealers in fish do not recognize any difference between the fish of the northern and the southern localities. Naturalists, however, make of these two or more distinct species. There has been, among naturalists, a great deal of confusion regarding the two species, and Dr. Henshall, in his work on the Black Bass, devotes many pages to the matter. In restoring the early nomenclature, he makes two species, the Small-mouthed Black Bass of the Northern and Western lakes, (*Micropterus dolmieu*, figure 1), and the Large-mouthed Black Bass (*Micropterus salmoides*), a more Southern species. When the two are compared, the southern species will be found to have a head much longer in proportion to the body; besides this, the two differ in the number of spines in the dorsal and other fins. It inhabits streams, rather than lakes and ponds, and occurs from the Ohio, southward, down the Mississippi Basin. It is said to have been unknown in the rivers of the Atlantic States before it was brought there. A little over thirty years ago, a conductor on the Baltimore and Ohio Railroad caught a number of the southern species in Wheeling Creek, and, placing them in the water-tank of the locomotive tender, brought them east, and liberated them in the Potomac. There they multiplied rapidly, and the river and its tributaries, for a distance of some 180 miles, are abundantly stocked with them. Since then, the southern species has been introduced into more northern rivers, the Schuylkill and the Delaware among others. So far as furnishing sport, or as a food fish, there does not appear to be any difference between the Northern and the Southern Black Bass. The Black Bass are taken by the use of minnows and other live-bait, by trolling with spoon-bait and other artificial contrivances, and also by artificial flies. Many a farmer's boy has caught a good mess of this excellent fish by the use of grass-hoppers, or even earth worms, without resort to any of the arts of the angler.

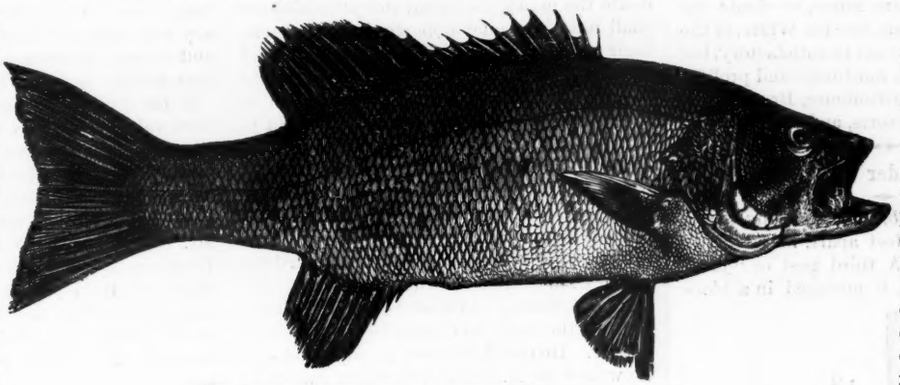


Fig. 1.—SMALL-MOUTHED BLACK BASS (*Micropterus dolmieu*).

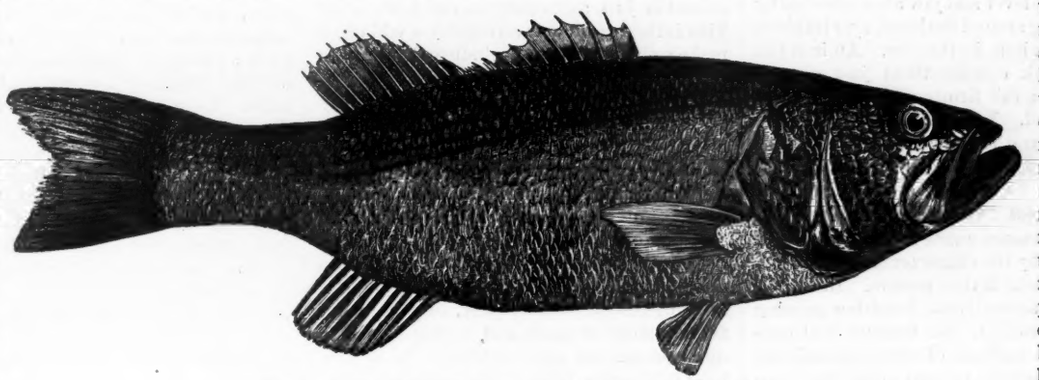


Fig. 2.—LARGE-MOUTHED BLACK BASS (*Micropterus salmoides*).

Breeding Geese.

BY D. Z. EVANS, JR.

With suitable facilities, breeding geese is profitable, and many a farmer's wife has secured home comforts from this source. It is useless to breed geese with too little room; they must have their liberty to do well, and be furnished with large grass runs, as they are great graziers. Their weakness for fruit, and their ability to trample down small fruits and vegetables, makes them undesirable where there are fruit and vegetable plantations. They must be kept away from young chicks, or they will soon destroy them, especially during the hatching season when they are unusually cross and combative.

Selection of Breeding Stock.

Choose only those free from all defects, either individual, or hereditary. It is the rule with good breeders, to keep the same birds two or three years successively for breeding, as the progeny is usually stronger and healthier from such stock, than from younger ones. The ganders, however, rapidly depreciate with age, and also early pair off with single females. In these cases, a young and vigorous gander is substituted. It is best to make the selection for breeding in autumn, just before culling out for fattening, or selling stock to others. No amount of persuasion, or tempting high price, should induce the breeder to part with his best birds, for if he desires to steadily improve his flock, no matter whether it is of so-called common birds, or thorough-breds, he must take his pick first, of the very cream of the flock.

Hatching and Rearing

If geese are set early, two broods can be obtained from each bird, thus securing large flocks for each season's sales. The later hatched birds, generally having favorable weather, will make good weights by late fall, especially if given extra care and food. These late birds make excellent eating about Christmas time. The goose usually makes her own nest, though it is well to help her a little. She is a careful and constant mother, but her love for the water must be restrained until the goslings are a few weeks old, for many dangers, in the form of rats, snakes, turtles, etc., lurk at the water's edge.

Feeding and Fattening.

Goslings do not require much extra feed, if they can get all the fresh and tender grass they want, and unless this can be supplied, breeding geese is not profitable. For the first few weeks some food must be given; this should never be corn-meal, for nine-tenths of the mortality among fledglings, of the various kinds of domestic fowls, can readily be traced to feeding corn-meal. Cottage cheese, in which red pepper (Cayenne,) has been sprinkled, is a very good food, and a quantity of fresh onion tops, chopped up fine, is relished by them. Stale bread soaked in fresh milk, makes an excellent food for all young birds, and the way they develop when fed liberally with it, will astonish any one who has not before tried it with his fowls. The greater part of the management of geese, consists in keeping them (the goslings) free from dampness while they are still "downy," guarding them from the attacks of rats, cats, weasels, and other of their enemies, in housing them well at night, and in giving them a fresh grass run as often as possible. When they become fully feath-

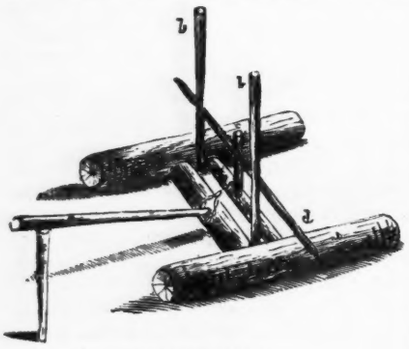
ered, they are abundantly able to take care of themselves; many breeders then let the geese find all their own food, which they can readily do on a large farm, until fattening time, or when the grass begins to get short, when they are brought up, and liberally and regularly fed with corn, still being permitted to have their liberty, until a week or two before they are to be killed, when they are penned up and fed with all they can eat.

Varieties.

In breeding for mere fancy, no doubt the odd or handsome kinds, like the White, or the Brown China, etc., would be satisfactory, but where heavy weights, hardiness, and prolificness is concerned, the Toulouse, Bremen, and Embden are superior sorts, and mature early.

A Rail Holder or "Grip."

Drive two posts, *b*, *b*, three feet long, firmly in the ground, four feet apart, between two parallel logs, *a*, *a*. A third post or "jaw," *c*, somewhat shorter, is mortised in a block



A RAIL HOLDER.

placed between the logs, and out of line with, or to one side of the posts, *b*, *b*, so as to hold a rail, *d*, between the three. A lever, *e*, 8 feet long, and heavy at the outer end, is mortised into another block, which is placed on the side of *b*, *b*, both blocks bearing against the posts. The lever and jaw are connected by a chain passing around the lever, *over* its block and through a hole in the jaw. An iron pin through a link couples them just enough apart to hold a rail firmly when the lever is on the ground. To remove the rail, raise the lever and rest it upon the small post, *f*, at the farther end, which slackens the chain.

Farm Yard Manure.—The composition of the manure made in the barn-yard, is determined by the character of the animals, and the food which they receive. In case of a full grown animal, that is neither gaining or losing in weight, the manure will contain the same amount of nitrogen, and ash constituents, as were present in the food consumed. The animal is like a machine for the conversion of the principal fertilizing constituents of the fodder, into a more available form for plant food. If an animal is gaining in flesh, producing milk, or growing wool, etc., its manure will be less valuable. The character of food affects the quality of manure. A diet of straw can give only a poor manure, while if the animal has a good supply of rich food, as oil-cake and bran, its manure will be correspondingly rich in nitrogen, and ash constituents. Aside from the animal and the food it gets, the value of a manure is governed greatly by the treatment it receives after being dropped. Save the urine.

Agricultural Shows.—Their Abuses.

BY COL. MASON C. WELD.

Why do we call these Shows, Exhibitions or Expositions, "Fairs?" Goods are not there for sale. A few sales are made and there ought to be more; but they are not Fairs.

The managers and the public assume that animals and articles exhibited come fairly in competition for the prizes,—which, by the way, are absurdly called "premiums." No doubt the managers intend that all exhibitors shall have an equal opportunity to present their articles and to have them fairly judged upon their merits. In some cases this really occurs, and managers who fail to do all in their power to secure this, neglect their duty.

If the entry books or the stock and articles in the show may be examined by exhibitors before the entries are closed, and an exhibitor may thus learn what will be shown by a competitor, he may modify his own entry, with the view of capturing prizes, by artifice rather than of securing them by merit.

I have known a favored exhibitor after a sight of the books to change his entire set of entries. He could tell very nearly what cattle were to be shown and in which classes he would be beaten and in which pretty sure to win. I believe this is a common practice of some men in almost every Agricultural Society, and of some who have official connection with the societies. When entries are closed a month in advance, the only way that any such advantage may be gained by one exhibitor over another, is for an exhibitor to make a large number of entries, but to bring or present only such as he thinks will win.

It should not be forgotten either by managers of shows, or by the general public who look on, or indeed by the judges and jury who make the awards, that with many exhibitors the honor of winning is not so much valued as the money won, and that with a large class the *honor* counts for less than the trade or consideration which that honor brings with it. To such, a prize dishonorably gained is just as valuable as one fairly won. This is the reason why an exhibitor will often make great efforts to prejudice the jury in his favor, and so secure the award.

Influence is brought to bear upon the jury of awards in various ways. One man will openly address a judge in praise of his competitor's exhibit, and loudly call attention to the best points, but quietly regret certain defects, or express doubts about the age or breeding of the animals, or other points affecting the competing exhibit. Sometimes a third party discusses matters with a judge in a disinterested, friendly way, talking up his friend's stock or goods and trying to prejudice him against other exhibits. It is very hard to guard a jury against such influence. I have known the principal officers of Agricultural Societies take judges to one side and indicate how in their judgment the awards should go, by calling special attention to certain entries of those who were known to be on terms of personal friendship with them, and disparaging others—or damning them with faint praise. There are many men appointed as judges who are unfit to serve, and who know it themselves. These are wide awake to watch and listen and find out what practical men think, and it is very easy, if it is known that they are not strong, to influence them. An exhibitor who goes to the show to get prizes, by fair means or foul, will measure such a man at the first glance, and "go for him," as the saying is. A weak judge is of no account in any way. A jury of two judges works better than one of three, and a single good judge better than either; but he must be a man to be depended upon.

The system, especially prevalent in small societies, of distributing the prizes about so as to "encourage" all exhibitors, and make everybody happy, is most pernicious. At such shows it matters very little who the judges are. The prizes are worth nothing any way as honors, and very little in money, and so long as such a system is in vogue, they will be worth no more.

If the jury could be from a distance, and have valuable awards to make, and be real judges of the animals or articles of whose merits they decide, and be let alone, to make their awards without knowing that this, that, and the other are shown by the Hon. Mr. Blank, by Judge So-and-So, or by the President of the Society, and without knowing that certain animals belong in one herd, others in another, and so on, we would have awards which would be worth something. True, 1st, 2d, and 3d prizes might go to the same man, and the President of the Society, or the member of Congress, might go without; but what of that, so long as a fair, disinterested judgment is given?

What is true of animals, is true of goods of all kinds. One rule should prevail everywhere, every time—the prizes should go to the article or animal, and not to the exhibitor. It is remarkable how few of the men who are picked up as judges at the smaller fairs about the country, have any idea that they ought to consider this, the merits of the animal or article solely. Nothing is more common than such remarks: "We can't do that; we shall be giving the same man both 1st and 2d; that won't do." Or, "If we give him 1st, he will be taking 1st in two or three classes; we ought to change that."

Juries are very imperfectly instructed how to judge. They need instruction—definite rules, plainly stated, not only in printed form, but verbally. A great many men have such an idea of their own knowledge and abilities, that they will not read the printed rules. To such it is essential that some officer of the Society should most distinctly lay down the law by word of mouth.

There is always more or less hurry-scurry at the time of the Show, and questions which come up then cannot always be discussed and settled. For instance, who is to decide to throw out an entry for fraud or mistake on the part of the exhibitor—the Judges or the Society? Suppose the judges suspect a "pair of geese" to be both of the same sex, or a heifer in the yearling class to be two years old, or an animal to have artificially-colored horns or skin? Many a jury of judges will decide that they have nothing to do with these questions, but decide upon the entries presented to them, presuming them to be all right. Thus, of course, great injustice is done.

I might show how Agricultural Exhibitions, which ought to be, and, in spite of abuse, are of great service to the community, are prostituted to private gain in mean, underhand ways, which are enough to disgust one who sees them worked out, with all such Shows, but this is enough; and if published in the *American Agriculturist* for August, will put exhibitors, spectators, and officers of Societies on their guard.

Law for Farmers.—Promissory Notes, and Patent Right Rogues.

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Every farmer doubtless, sooner or later, has occasion to give or take a promissory note. It is therefore desirable that he know something about his rights and liabilities connected with them. Particularly is it desirable that he understand somewhat the legal incidents of these peculiar contracts (for such they are), from the fact that they are often made the vehicle by which the villainous rogue—oftener the patent right rogue than any other—perpetrates his crime upon the unwary.

A promissory note is a written agreement to pay a certain sum of money at a certain time. It must be definite and unconditional. It is therefore in the nature of money; being negotiable, and where payable to bearer, the property in it passes by mere delivery of the paper on which it is written. It is not subject to all the defences that are good as against other contracts. For example: It is generally good in the hands of an innocent holder, no matter though the maker of it had lost it, or it had been stolen, or obtained from him by fraud. This may be the case, even though it has been altered or "raised," as where I give my note signed in blank to a person, authorizing him to fill in a certain amount, as $10, and he fills in a larger amount, as $100, and sells it to an innocent purchaser. I must pay the larger amount, for I it was who enabled the fraud to be committed; and an old maxim of the law holds that where one of two innocent persons must suffer from the wrongful acts of a third, the loss must be borne by the one who enabled such third person to occasion it. The justice of this is obvious, and every farmer will appreciate the necessity of protecting, in the largest degree, the rights of *bona fide* holders of negotiable instruments, which form part of the currency of the country, and if subject to all the defences of other written contracts, would be deprived of their main value.

It will be seen, then, that these instruments become to the shrewd rascal a convenient means of swindling the unsuspecting; for, having once got them in his possession, no matter how fraudulently, they become, in most instances, practically money, and their makers cannot help themselves. It behooves farmers therefore to be very careful in the matter of giving notes, and to always be certain of getting value received for them; for they may be certain of having to pay them, whether they get anything in return or not. A class of miscreants who have in years past successfully operated by this means, have tramped over the country with the apparent object of selling patent rights. Had they confined themselves to the legitimate sale of patent rights or of patented articles, they would have been less intolerable, though they have forced many useless things upon the public, and induced many a farmer, by their voluble persuasiveness, to pay dearly for things which he did not want. But their real object has often been far less innocent. A favorite dodge with them has been to get the farmer to accept an agency for the sale of the articles in his town or county, securing his signature to a printed contract for that purpose—underneath which is adroitly concealed a printed promissory note, which the farmer unwittingly signs, supposing it to be a duplicate of the contract. A few months afterwards he is confronted by a demand for the payment of his note by some shaver in a neighboring town, who bought the same in good faith. To avoid a law suit, the farmer probably ends the matter by compromising with the holder of the note, or by paying its full amount out of his hard-earned savings. This is but one of many similar methods employed by these villains, but it has been used to such an extent in some parts of the country, as to lead to special legislation. In Michigan, a statute enacted for the special "benefit" of these rogues, requires that every note given for the right to make, use, or sell any patented invention shall have written across its face, "*Given for Patent Right*," and such notes are made subject to all defences good between original parties, no matter in whose hands they are; and the Supreme Court of that State had, prior to the passage of that law, held that a note, the signature to which had been obtained in the manner above indicated, was in the nature of a forgery, and absolutely void. But this is contrary to the doctrine in many other States, and farmers generally are not thus protected. As stated, therefore, it behooves them to be careful what they sign. A good rule would be—never give a promissory note unless absolutely necessary; never give one without value received; never sign any paper in the hands of a stranger.

Happily, this means of swindling seems to be decreasing. This indicates, I apprehend, that the farming communities, through the influence largely of the agricultural press, have become too enlightened for these swindlers to successfully practice their operations.

Saving Vegetable Seeds.

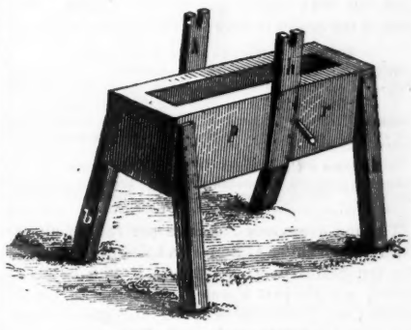
If there are many varieties of the same vegetable in a garden, it is impossible to save the seeds of some in an unmixed state. Sweet Corn, and all of the Squash family, are quite sure to "mix." On the other hand, Peas and Beans rarely cross. If one saves seeds of any vegetable, let it be of the best. Instead of leaving the last Peas on the vines for seed, set apart a portion of a row for seed, and let none be picked from it. By proper care, the quality of a vegetable may be improved. In saving Lima Beans, we have for several years selected only those with four beans in the pod; as a consequence, the greater number of pods in the whole crop now have four beans. The selection of the first ripened and best formed Tomatoes for seed will have a marked effect upon future crops, and this is the case with all other vegetables. If one has a choice Melon he would preserve in its purity, the surest method is to fertilize a few female flowers. Take a male flower of the same kind that is shedding its pollen, remove the corolla, to expose the stamens. Select a female flower that is just ready to open, but has not been visited by insects; open it, and apply the stamens to the pistil of that flower. Cover the flowers thus operated upon by a bit of muslin until the fruit begins to grow.

The Barn Yard.—The summer showers fill up the low places in the barn-yard with water, that has leached through the manure, and is rich in fertilizing materials. This should be kept from running away by the use of litter that will absorb the liquid. The American farmer is gradually gaining a knowledge of the fact that manure is too valuable to be wasted, and that the making of a large amount of it, of good quality, is an important part of profitable farm work. To this end sheds will and should be more extensively used to shelter manure, for it can be shown beyond a doubt, that the best quality of this natural fertilizer, can only be made when kept from the exposure of the open yard. Look well to the barn-yard manure.

A Cheap and Durable Grindstone-Box, and Hangers.

L. D. SNOOK, YATES CO., N. Y.

A good grindstone well hung, is one of the most valuable aids about the farm or workshop. Those who cannot afford to buy a very neat and handy grindstone frame of the hardware dealers, will find a frame and hangers shown in the engraving, that for convenience, cheapness, and durability, is hard to excel. The frame consists of a well-seasoned "trough" of pine or other wood, fourteen inches square (or even one foot square), and from two and a half, to three and a half feet in length, to which legs are nailed at *b*, *b*, four inches wide, one and a half inch thick, and bevelled at the top. Supports or hangers, *h*, *h*, are nailed firmly to the side as indicated; they should be hardwood, and of a size to correspond with dimensions, and weight of stone. The shaft may be of iron or wood; fit a piece of sheet lead, or piece of lead pipe properly flattened out, in the top of each hanger; this will cause the shaft to turn easily, and prevent all squeaking for want of oil. The wooden plug at *r*, is for drawing off the water after each using of the stone, and should in no case be neglected. If one side of the stone



A BOX FOR A GRINDSTONE.

is left standing in water, it softens, and the surface will soon wear quite uneven. After the box is completed, give it one heavy coat of boiled oil; then in a few days apply a coat of lead and oil, and with even common care, it will last a lifetime. When the stone becomes worn, it is kept down to the water by simply deepening the groove in the top of the hangers. Always buy a long shaft for a grindstone, for in this age of reapers and mowers, the cutting apparatus of which must be ground, a long shaft for a grindstone is almost a necessity, or truly a great convenience. If the grindstone is to stand outdoors, always cover it with a closely fitting wooden box when it is not in use.

The Farms of the United States.

Their Total Number in 1870 and 1880, and the number in each State and Territory in 1880.—The Leading States arranged in Groups showing the number of Farms of different sizes, from less than Three Acres to over One Thousand Acres each.

The tables of figures herewith may at first sight appear to be "dry reading" to some, but a little examination will reveal a very large amount and variety of interesting information, presented in the most condensed form. The figures are epitomized partly from the official Census for 1880 (except in the four lines marked with a *), partly from advanced figures kindly furnished to the *American Agriculturist* by Mr. C. W. Seaton, Supt. Census, etc. After repeated efforts, we have been unable to obtain the four * sets, except for the first two columns giving the total number of farms in 1870 and 1880, which are official. The detail figures are not yet made up at the Census office, and we insert estimates based upon comparisons of the population, etc., of similarly situated States and Territories—founding the detail estimates of Massachusetts, for example, upon the official figures for Connecticut, and those of Tennessee upon those of Kentucky. Our detail estimates for Texas and for the seven new States and Territories grouped together, may be somewhat wide of the mark in individual cases, but this will not materially affect the total results, and have no effect upon the other comparisons.

The Total Number of Farms, Families, and Dwellings.—The number of farms exceeds four millions, or about one farm to every twelve inhabitants, old and young. The total number of families in the United States in 1880, was 9,945,916. There were therefore about 100 farms for every 243 families, or rather more than two farms to every five families—cities, villages and country included. About half of the entire population are engaged in agriculture.—The dwellings, in city and country, number 8,955,812, a little more than double the number of farms.—The total of farms for 1870 are also given, but that Census was far less thorough than for 1880. According to the present figures for 1870, there were then 2,949,035 farms. The reports published at that time gave the total number of farms at only 2,659,985, and evidently too low.

Number of Farms, by States.—Illinois leads off with over a quarter of a million. The rank of the States is shown in the following tables:

GROUP A.—HAVING OVER 200,000 FARMS.

Illinois	255,741	New York	241,058
Ohio	247,189	Missouri	215,575
Penn.	213,542		
Total.	1,173,105		

GROUP B.—HAVING OVER 150,000 FARMS.

Indiana	194,013	Kentucky	166,458
Iowa	185,351	Tennessee	165,650
Texas	174,184		
N. Carolina	157,609		
Michigan	154,008		
Total	1,197,268		

GROUP C.—HAVING OVER 100,000 FARMS.

Georgia	138,626	Alabama	135,864
Kansas	138,561	Wisconsin	134,322
Virginia	118,517		
Mississippi	101,772		
Total	767,662		

The first five contain over 28 per cent of all the farms in the entire 47 States and Territories; while the ten States in groups *A* and *B*, with 2,030,535 farms, contain just about as many as all the 37 others; and the 18 States in the three groups number very nearly 78 per cent of all the farms.

Most Farms to the Area of land surface (excluding water areas): Connecticut leads with about six and one-third (6.32) farms for each square mile, followed by Ohio, Rhode Island, etc., thus:

FARMS TO SQUARE MILE.

Conn.	6.32	N. Y.	5.06	Ill.	4.56
Md.	4.11	Ohio	6.08	Penn.	4.80
Del.	4.42	Vt.	3.87	R. I.	5.73
N. J.	4.60	Ky.	4.16	Tenn.	3.34

In Great Farms, (and Plantations,) having 1,000 acres or more, Georgia leads, followed thus:

GROUP D.—FARMS OVER 1,000 ACRES.

Georgia	3,197	Mississippi	1,333	Virginia	1,563
California	2,531	N. Carolina	1,721	Louisiana	1,319
Alabama	1,868	S. Carolina	1,685	Kentucky	1,112

Texas and Tennessee probably belong in this group.

GROUP E.—FARMS OF 500 TO 1,000 ACRES.

Georgia	7,017	Miss.	3,976	Ill.	3,249
Ind.	1,320	Va.	5,561	Ky.	3,802
Iowa	2,298	N. Y.	1,315	N. C.	5,063
S. C.	3,693	La.	2,159	Ohio	1,309
Ala.	4,645	Mo.	5,536	Ark.	1,793
Oregon	1,280				

Tennessee and Texas probably belong to this group also.

TABLE A.—The Farms of the United States and Territories.

States.	Total Number of Farms. 1870.	1880.	Number Occupied by Owners.	Rented for Money.	No. Rented on Shares	1,000 Acres and Over.	500 to 1,000 Acres.	100 to 500 Acres.	50 to 100 Acres.	20 to 50 Acres	10 to 20 Acres	3 to 10 Acres	Under 3 Acres
Alabama	67,382	135,864	72,215	22,688	40,761	1,868	4,645	44,254	26,447	41,721	13,055	3,597	277
Arkansas	49,424	94,433	65,245	9,916	19,272	648	1,793	37,976	21,787	19,282	10,780	2,070	97
California	23,724	35,934	28,810	3,209	3,915	2,531	3,108	20,214	3,969	3,475	1,430	1,641	143
Connecticut	25,508	30,598	27,472	1,920	1,206	17	133	9,511	8,107	7,288	3,247	2,261	34
Dakota	1,720	17,435	16,757	72	606	74	246	16,253	547	210	63	36	6
Delaware	7,615	8,749	5,041	511	3,197	9	66	4,631	2,039	1,205	484	311	4
Florida	10,241	23,338	16,198	3,548	3,692	377	652	6,562	4,381	7,640	2,456	1,301	69
Georgia	69,956	138,626	76,451	18,357	43,618	3,491	7,017	53,635	26,054	36,524	8,694	3,110	101
Illinois	202,803	255,741	175,497	20,620	59,624	649	3,249	116,562	76,060	46,594	8,299	4,170	138
Indiana	161,289	194,013	147,963	8,582	37,468	275	1,320	72,103	64,080	43,403	8,019	4,663	200
Iowa	116,292	185,351	141,177	8,421	35,753	364	2,298	95,163	58,519	23,488	3,334	2,063	122
Kansas	38,202	138,561	115,910	4,438	18,213	235	1,169	93,823	31,078	9,539	1,658	997	62
Kentucky	118,422	166,453	122,426	16,824	27,203	1,112	3,802	69,472	40,594	30,673	13,728	6,759	313
Louisiana	28,481	48,292	31,286	6,669	10,337	1,319	2,159	15,031	8,501	12,626	6,708	1,848	100
Maine	59,804	64,309	61,528	1,628	1,153	116	378	25,035	22,025	11,489	3,132	2,309	95
Maryland	27,000	40,517	27,978	3,878	8,661	77	728	19,792	7,768	5,948	3,293	2,760	151
Massachus's*	26,500	38,406	34,406	2,500	1,500	22	167	12,000	10,000	9,000	4,250	2,900	67
Michigan	98,796	154,008	138,597	5,015	10,396	84	408	48,391	55,777	45,029	4,514	2,737	69
Minnesota	46,500	92,386	88,933	1,251	7,202	145	741	56,575	25,530	8,009	952	604	36
Mississippi	68,023	101,772	57,214	17,440	27,118	1,333	3,976	35,493	19,318	26,896	11,936	2,336	84
Missouri	148,328	215,575	156,708	19,843	39,029	685	3,536	97,359	58,030	43,736	8,647	3,460	124
Nebraska	12,301	63,387	51,963	1,948	9,476	118	666	41,542	16,652	3,701	708	355	45
N. Hampshire	29,642	32,181	29,566	1,237	1,378	104	385	13,446	8,716	5,662	2,086	1,721	111
New Jersey	30,652	34,307	25,869	3,608	4,830	60	147	10,674	9,617	7,682	3,721	2,342	64
New Mexico	4,480	5,053	4,645	22	386	43	56	910	484	849	1,035	1,633	14
New York	216,253	241,058	201,186	18,124	21,748	281	1,315	96,273	70,661	40,386	17,229	14,543	370
No. Carolina	93,565	157,609	104,887	8,644	44,078	1,721	5,063	61,806	34,007	34,148	13,314	7,273	277
Ohio	195,953	247,189	199,562	14,834	32,793	252	1,309	92,645	75,298	49,365	14,157	10,951	212
Oregon	7,587	16,217	13,938	741	1,538	352	1,280	11,791	1,723	679	207	172	13
Pennsylvania	174,041	213,542	168,220	17,049	28,273	244	922	78,877	63,927	38,331	16,976	14,017	250
Rhode Island	5,368	6,216	4,960	989	247	5	48	2,029	1,706	1,391	607	418	12
So. Carolina	51,889	93,864	46,645	21,974	25,245	1,685	3,693	27,735	13,612	25,517	12,519	7,035	118
Tennessee*	118,141	165,650	122,150	16,500	27,000	1,100	3,800	69,100	40,400	30,500	13,700	6,730	320
Texas*	61,125	174,184	125,984	13,200	35,000	1,500	4,084	123,000	37,500	3,000	2,725	2,175	200
Utah	4,908	9,452	9,019	60	373	9	36	1,916	2,056	3,688	1,313	416	18
Vermont	33,837	35,522	30,760	2,164	2,598	97	583	19,185	7,822	3,973	1,767	1,488	5
Virginia	73,849	118,517	83,531	13,392	21,594	1,563	5,561	53,101	22,144	19,922	9,663	7,022	101
Washing'n T.	3,127	6,529	6,058	209	262	62	252	5,239	611	207	71	74	13
W. Virginia	39,778	62,674	50,673	4,292	7,709	845	2,255	30,301	14,461	8,488	3,463	2,797	64
Wisconsin	102,904	134,322	122,163	3,719	8,440	109	666	60,296	44,719	22,718	3,200	2,516	98
Ariz.; Col.; D. C.; Ida.; Mon.; Nev.; Wyoming.	* 4,595	10,972	* 7,100	* 2,500	* 1,372	* 400	* 500	* 8,000	* 1,322	* 400	* 150	* 100	* 100
Total	2,949,035	4,008,907	3,011,906	322,736	674,265	26,631	74,174	1,754,501	1,041,020	733,716	237,260	135,701	4,694

*Estimated, except for the first two columns, which are Official.

Of Medium Farms, 100 to 500 acres, generally 160 acres, or "quarter sections," the following fifteen States have over 40,000 each, viz.:

GROUP F.—FARMS OF 100 TO 499 ACRES.

Illinois	116,562	Ohio	92,645	N. C.	61,806
Virginia	53,101	Mo.	97,359	Penn	78,877
Wis.	60,296	Mich.	45,391	N. Y.	96,273
Ind.	72,103	Minn	56,375	Neb.	41,542
Kansas	93,823	Ky.	69,472	Georgia	53,635
Tex., Tenn.(?)					

Of Small Farms, 50 to 100 acres, many of those in the West being "half" or "quarter sections," fifteen States have over 25,000 each, viz.:

GROUP G.—FARMS OF 50 TO 99 ACRES.

Ohio	78,298	Penn.	63,927	Wis.	44,719
Ala.	26,447	Illinois	76,060	Iowa	58,519
Ky.	40,594	Georgia	26,054	N. Y.	70,661
Mo.	58,030	N. C.	34,007	Minn	25,530
Ind.	64,030	Mich.	55,777	Kansas	31,078
Tex., Tenn.(?)					

Of Very Small Farms, having 20 acres and under 50 acres, Ohio leads with nearly 50,000, and 16 States contain over or nearly 20,000 such farms:

GROUP H.—FARMS OF 20 TO 49 ACRES.

Ohio	49,365	Iowa	43,403	Georgia	36,524
Iowa	23,483	Illinois	46,594	Ala.	41,726
N. C.	34,148	Wis.	22,781	Mich.	45,029
N. York	40,386	Ky.	30,673	Va.	19,322
Mo.	43,736	Penn	38,331	Miss.	26,836
Ark.	19,283				

Of Diminutive Farms, under 10 acres each, there are about 135,000 reported. These probably consist largely of those cultivated as market gardens, near cities, and with specially valuable products, as Tobacco and early vegetables, etc. The twenty States having over 2,100 of these reported are:

GROUP I.—FARMS OVER 3 AND UNDER 10 ACRES.

N. Y.	14,543	Virginia	7,012	Missouri	3,460
Wis.	2,516	Penn	14,017	Ky.	6,759
Georgia	3,110	N. J.	2,342	Ohio	10,951
Indiana	4,663	W. Va.	2,797	Miss.	2,336
N. C.	7,273	Illinois	4,170	Md.	2,760
Maine	2,909	S. C.	7,035	Alabama	3,597
Mich.	2,737	Conn.	2,261		

GROUP K.—FARMS UNDER 3 ACRES.

New York	370	Ohio	212	Iowa	122
Virginia	101	Kentucky	313	Indiana	200
Missouri	122	Louisiana	101	Alabama	277
Maryland	151	S. Carolina	118	Wisconsin	98
N. Caroli'a	277	California	143	N. Hamps.	111
Arkansas	97	Pennsyl'a.	250	Illinois	138
Georgia	101	Maine	95		

Dairy Products of the United States.

The last three columns of the large table (B) supply some striking, as well as interesting items. The Milk consumed as milk (529,979,992 gallons) would fill a round lake 5 feet deep and about 4,300 feet (five-sixths of a mile) in diameter. If loaded upon railway cars, 100 cans of 40 gallons each to the car, 13,249 cars would be needed, and these would make up a train over 100 miles long, allowing 40 feet to the car.

In Milk used, Illinois leads with 45,419,719 gallons, followed by Massachusetts, with two-thirds as much, and New York with over half the quantity.

In Butter, made on the farm, not including factory products, New York leads with 111,922,423 lbs., followed by Pennsylvania, Ohio, etc., thus:

POUNDS OF BUTTER BY CENSUS OF 1880.

N. Y.	111,922,423	Iowa	55,481,958	Ind.	37,377,797
Vt.	25,240,826	Pa.	79,386,012	Ill.	53,657,943
Wis.	33,353,045	Kans.	21,671,762	Ohio	67,634,263
Mich.	38,821,890	Mo.	28,572,124	Minn	19,161,385

These twelve States produced just three-fourths, or 75 per cent, of all made in the United States and Territories. Six others produced over 10,000,000 pounds, and twelve others over 5,000,000 pounds.

In Cheese, made on the farm, not including factory products, New York also leads far ahead with 8,362,590 pounds, followed by California and others producing over 500,000 pounds each, thus:

POUNDS OF CHEESE BY CENSUS OF 1880.

N. Y.	8,362,590	Ohio	2,170,245	Iowa	1,075,988
Conn.	826,193	Cal.	2,566,618	Vt.	1,545,789
Ill.	1,035,069	Mass.	817,023	Wis.	2,231,411
Maine	1,167,730	Penn.	1,008,686	N. H.	807,676

Three States, New York, California, and Wisconsin, are credited with about one-half of all farm-made Cheese in the whole country, while the above 12 States produced seven and a half times as much Cheese as all the other 35 States and Territories.

Farm Animals in the United States.

Nearly One Hundred and Thirty-one Millions.—Sundry Surprising and Interesting Figures, Comparisons, Etc.

The full Census Reports for 1880, when completed, will present many useful statistics.—In the meantime, we have prepared from official advance sheets for our readers several items, comparisons, etc., which will be interesting, and serve for future reference, in a more condensed form than they will appear in the official tables. If, before examining the following statements, any reader will ask himself, and answer, in what States we shall find the greater number of Horses, Mules, Cows, Sheep, Swine, etc., we think the one who does so will be much surprised at the facts brought out by the official enumerations epitomized on next page. The numbers given take into account chiefly the animals in possession of owners or cultivators of farms, *excluding* neat cattle, sheep, and other animals kept on western ranches, on public lands; also excluding Horses, Mules, Cows and Swine in cities and villages, not used for farming purposes; also excluding spring lambs of 1880, and reckon-

TABLE B.—Farm Animals of the United States and Territories.

1880. States.	Horses.	Mules and Asses.	Working Oxen.	Milch Cows.	Other Cattle.	Shorn Sheep.	Swine.	Wool sheared 1880, Lbs.	DAIRY PRODUCTS, 1879. Milk used Gallons.	Butter, Pounds.	Cheese, Pounds.
Alabama	113,950	121,081	75,534	271,443	404,213	347,538	1,252,462	762,307	267,387	7,997,719	14,491
Arizona	6,78	891	984	9,156	34,843	76,524	3,819	313,698	42,618	61,817	18,360
Arkansas	146,333	87,082	25,444	249,407	433,392	246,757	1,565,098	557,368	316,858	7,790,013	26,301
California	237,710	28,343	2,288	210,078	451,941	4,152,349	603,550	16,798,036	12,353,178	14,084,405	2,566,618
Colorado	42,257	2,581	2,080	28,770	315,989	746,443	7,656	3,197,391	506,706	860,379	10,867
Connecticut	44,940	539	28,418	116,319	92,149	59,431	63,699	230,133	12,289,893	8,198,995	826,195
Dakota	41,670	2,703	11,418	40,572	88,825	30,244	63,394	157,025	415,119	2,000,955	39,437
Delaware	21,933	3,931	5,818	27,294	20,450	21,967	48,186	97,946	1,132,434	1,876,275	1,712
D. Columbia	1,027	68	4	1,292	271	.....	1,133	.....	496,789	20,920	.....
Florida	22,636	9,606	16,141	42,174	409,035	56,681	267,051	162,810	40,967	353,156	2,406
Georgia	98,520	132,078	50,026	315,073	544,812	527,589	1,471,008	1,289,560	374,645	7,424,485	19,151
Idaho	24,300	610	737	12,838	71,292	27,326	14,178	127,149	15,627	310,644	20,295
Illinois	1,023,082	123,278	3,346	865,913	1,515,063	1,037,073	5,170,266	6,093,066	45,419,719	53,657,943	1,035,069
Indiana	581,444	51,780	3,970	494,944	864,846	1,100,511	3,186,413	6,167,498	6,723,840	37,377,797	367,561
Iowa	792,322	44,124	2,506	854,187	1,755,343	455,359	6,034,316	2,971,975	15,965,612	55,481,958	1,075,988
Kansas	430,907	64,869	16,789	418,333	1,015,935	499,671	1,787 969	2,335,832	1,360,235	21,671,762	483,987
Kentucky	372,648	116,153	36,166	301,882	505,746	1,000,269	2,225,225	4,592,576	2,513,209	18,211,904	58,468
Louisiana	101,428	76,674	41,739	146,454	282,418	135,631	633,489	406,578	256,241	916,089	7,618
Maine	87,848	298	43,049	150,845	140,527	565,918	74,369	2,776,407	3,720,783	14,103,966	1,167,730
Maryland	117,796	12,561	22,246	122,907	117,387	171,184	335,408	850,084	4,722,944	7,485,871	17,416
Massachus'ts	59,629	243	14,571	150,435	96,045	67,979	80,123	299,089	29,513,190	9,609,821	817,028
Michigan	378,778	5,083	40,393	384,578	466,660	2,189,389	964,071	11,858,497	7,898,273	38,821,890	440,540
Minnesota	257,282	9,019	36,344	275,545	347,161	267,598	381,415	1,352,124	1,504,407	19,161,385	523,138
Mississippi	112,309	129,778	61,705	268,178	387,452	287,694	1,151,818	734,643	427,492	7,454,657	4,239
Missouri	667,776	192,027	9,020	661,405	1,410,507	1,411,298	4,553,123	7,313,924	3,173,017	28,572,124	283,484
Montana	35,114	838	936	11,308	160,143	184,277	10,778	995,494	41,165	403,738	55,570
Nebraska	204,864	19,999	7,254	161,187	590,129	199,453	1,241,724	1,282,656	625,783	9,725,198	230,919
Nevada	32,087	1,258	765	13,319	158,137	133,695	9,080	655,012	149,889	335,188	17,420
N.Hampshire	46,773	87	29,152	90,564	112,689	211,825	53,437	1,060,589	5,739,128	7,247,272	807,076
New Jersey	86,940	9,267	2,022	152,078	69,786	117,020	219,069	441,110	15,472,783	9,513,835	66,518
New Mexico	14,547	9,063	16,432	12,955	137,314	2,088,831	7,857	4,019,188	10,036	44,827	10,501
New York	610,358	5,072	39,633	1,437,855	862,233	1,715,180	751,907	8,827,195	23,196,553	111,922,423	8,862 590
No. Carolina	133,686	81,871	50,188	232,133	375,105	461,638	1,453,541	917,756	44,679	7,212,507	57,380
Ohio	736,478	19,481	8,226	767,043	1,084,917	4,902,486	3,141,335	25,003,756	4,680,153	67,634,263	2,170,245
Oregon	124,107	2,804	4,132	59,549	352,561	1,083,162	156,222	5,718,524	22,754	2,443,725	153,193
Pennsylvania	535,587	22,914	15,062	854,156	861,019	1,776,598	1,187,968	8,470,273	3,654,954	79,396,012	1,008,686
Rhode Island	9,661	46	3,523	21,460	10,601	17,211	14,121	65,680	383,170	1,007,103	67,171
So. Carolina	60,660	67,005	24,507	139,881	199,321	118,889	628,198	272,758	25,718	3,196,851	16,018
Tennessee	266,119	178,488	27,340	303,832	452,462	672,117	2,158,169	1,917,268	100,679	17,886,369	98,740
Texas	806,099	132,561	90,603	606,717	3,387,967	2,411,887	1,954,948	6,928,129	129,680	13,910,396	58,466
Utah	38,131	2,898	3,968	32,768	58,630	233,121	17,198	973,246	15,526	1,052,903	126,727
Vermont	75,215	283	18,863	217,033	167,304	439,870	76,384	2,555,113	652,655	25,240,826	1,545,789
Virginia	218,833	83,598	54,709	243,061	388,414	497,289	956,451	1,836,673	122,446	11,470,923	85,535
Washing'n T.	45,848	626	3,821	27,622	103,111	292,883	46,528	1,389,123	22,670	1,356,103	109,200
W. Virginia	126,143	6,226	12,643	156,956	288,845	674,769	510,613	2,681,444	75,027	9,309,017	100,300
Wisconsin	332,428	7,136	28,762	478,374	622,005	1,396,807	1,128,825	7,016,491	2,515,697	83,853,045	2,281,411
Wyoming	11,975	671	718	8,730	273,625	140,225	567	691,650	7,334	105,643	2,930
Total	10,357,981	1,812,932	993,970	12,443,593	22,488,590	35,191,656	47,683,951	155,684,834	529,979,992	777,215,597	27,257,989

ing only the farm-kept sheep shorn that year. After these exceptions, the total numbers stand thus:

Swine	47,683,951	Horses	10,357,981
Neat Cattle*	35,926,153	Mules and Asses	1,812,932
Sheep	35,191,656	**Total**	**130,972,673**

* The Neat Cattle comprise Cows, 12,443,593; Working Oxen, 993,970; Other Cattle, 22,488,590.

It will be noted that there are about the same number of Sheep as of Neat Cattle which include Cows, working Oxen, fattening Bullocks and Young Cattle.—Also that there are nearly twice as many Mules and Asses as there are of working Oxen, and nearly eleven times as many Horses. The Horses used in carts, carriages, under the saddle, etc., in cities and villages, would largely swell the number of Horses, if enumerated.—The percentage of increase between 1870 and 1880 shows that Horses increased 45 per cent; Mules and Asses, 61 per cent; Milch Cows, 39 per cent; working Oxen *decreased* 25 per cent; other cattle increased 66 per cent; Sheep, 24 per cent; and Swine, 99 per cent. In this period the human population increased 30 per cent; and there was an increase of 131 per cent in the product of Indian Corn, which is so largely used in sustaining or fattening Swine, beef Cattle, working Horses and Oxen.

Number of Animals, by States and Territories, in 1880.

Making the exceptions above noted (of animals not used by farmers, of those on ranches, and of unshorn spring Lambs), we have the following table:

Ohio	10,681,964	Indiana	6,283,908	Kentucky	4,558,089
Iowa	9,338,457	California	5,686,059	Michigan	4,428,952
Illinois	9,738,021	New York	5,422,082	Wisconsin	3,954,337
Missouri	8,905,156	Pennsyl'a.	5,251,304	Georgia	3,139,101

About sixty per cent of all farm animals, or nearly seventy-eight millions (77,976,436), were found in the above 12 out of 47 States and Territories.

In Farm Horses, Illinois leads off with over a Million; Texas has over Eight Hundred Thousand; Iowa nearly as many; Ohio nearly Three-quarters of a Million; Missouri with Two-thirds of a Million; New York and Indiana about Six Hundred Thousand each; Pennsylvania over Half a Million; Kansas a little under; Michigan, Kentucky and Wisconsin over One-third of a Million each.

Of Mules and Asses, Missouri has 192,027, followed in order by Tennessee, Texas, Georgia, Mississippi, Illinois, Alabama, and Kentucky, each of these States having over 100,000—Georgia and Texas being about equal. The Empire State has only 5,072 of these useful animals; the Keystone State quadruples this, and Kansas has already accumulated 64,869. Arkansas, N. Carolina, Louisiana, S. Carolina, and Indiana, each have over 50,000.

Of Working Oxen, Texas leads with 90,603, followed in order of numbers by Alabama, Virginia, Mississippi, N. Carolina, and Georgia, each having over 50,000; then by Maine, Louisiana, Michigan, and New York, with 50,000 to 40,000; by Minnesota, Kentucky, N. Hampshire, Wisconsin, Connecticut, Tennessee, and Arkansas, with 36,344 to 25,444 each.

Milch Cows.—New York leads off far ahead, scoring 1,437,855; the nearest approach being Illinois, with 865,913; Iowa and Pennsylvania nearly as many. Next in order, with over Half a Million Milch Cows each, are Ohio, Missouri, and Texas.—Between Five and Four Hundred Thousand, we have in order, Indiana, Wisconsin, and Kansas; in the Three Hundred Thousands, Michigan, Georgia, Tennessee, and Kentucky, while Minnesota, Alabama, and Mississippi have above a Quarter of a Million each. The larger table above shows the number in other States, some of the smaller ones, like New Jersey, Connecticut, etc., having a large number, in proportion to the area of land.

Of other Cattle, that is, growing and fattening steers and young animals, Texas stands far ahead of all others, with 3,387,967, from which we drop to Iowa, having 1,755,343; next to Illinois, with 1,515,063; then to Missouri, with 1,410,507; Ohio and Kansas each have above a Million; New York 862,233; Pennsylvania 861,019. (These eight States contain over half of all the Milch Cows, and of "other cattle," and over half of *all* the neat cattle in the 47 States and Territories.) Next follow Wisconsin, Nebraska, Georgia, and Kentucky, each having above Half a Million. In the Four Hundred Thousands, we have in order of numbers Michigan, Tennessee, California, Arkansas, Florida and Alabama. In the Three Hundred Thousands, are Virginia, Mississippi, North Carolina, Oregon, Minnesota and Colorado. Above a Quarter Million, and just under Three Hundred Thousand, are West Virginia, Louisiana, and Wyoming Territory. Rhode Island has only 10,601; little Delaware, 20,450; and New Jersey nearly 70,000.

Of Shorn Sheep, Ohio leads with nearly Five Millions, followed by California, with over Four Millions; Texas, Michigan, and New Mexico, with over Two Millions; Pennsylvania, with over One and Three-quarter Million. These five States and one Territory have more Sheep than all the other 41 States and Territories. New York comes next with 1,715,180.—Six other States run above One Million each, viz., Missouri, Wisconsin, Indiana, Oregon, Illinois, and Kentucky.—Five States have over Half a Million, viz., Colorado, West Virginia, Tennessee, Maine, and Georgia—Kansas, Virginia, Iowa, North Carolina, and Vermont, are nearly up to Half a Million. Seven others exceed 200,000.

Of Swine, Iowa leads with over Six Millions; Illinois follows with over Five Millions; Missouri with over Four and a Half Millions; Indiana and Ohio with over Three Millions each; Kentucky and Tennessee, with over Two Millions each; and Texas nearly Two Millions. These eight States contain very nearly three-fifths, or 60 per cent, of all the Swine in the United States. Kansas has 1,787,969; Arkansas over, and Georgia and North Carolina nearly One and a Half Million; Alabama and Nebraska about One and a Quarter Million; Pennsylvania nearly as many; while Mississippi and Wisconsin have over a Million each; Michigan and Virginia nearly reach a Million; New York has Three-quarters of a Million; Louisiana, South Carolina, and California, over Six Hundred Thousand; West Virginia over Half a Million. Nebraska, during ten years, increased her Swine 1,989 per cent, Kansas 765 per cent, and Iowa 346 per cent.

The Wool Clip of 1880.—Ohio leads with nearly one-sixth of the whole product of the United States, followed in order by California, Michigan, New York, Pennsylvania, and Missouri. These 6 States produced from 7,300,000 to 25,000,000 pounds each, and together more than all the other 41 States and Territories, excluding Ranch products.

STATES PRODUCING NEAR 1,000,000 LBS. WOOL & UPWARD.

Ohio	25,003,756	Texas	6,928,129
Cal	16,798,036	Ind	6,167,498
Mich	11,858,497	Ill	6,093,066
N.Y	8,827,195	Ore'n	5,718,524
Penn	8,470,273	Ky	4,592,576
Mo	7,313,924	N. Mx	4,019,188
Wis	7,016,491	Col'a	3,197,391
Iowa	2,971,975	Wa. T	1,389,123
Kans	2,855,332	Minn	1,352,124
Maine	2,776,407	Geo	1,289,560
W. Va	2,681,444	Neb	1,282,656
Ver't	2,555,113	N. H	1,060,589
Tenn	1,917,268	Mont	995,484
Vir'a	1,836,673	Utah	973,246

Wool Grown, Imported, and Used.

The interesting figures below show the great progress in wool growing in the United States within 30 years; also the amount imported and exported and consumed in our own manufactures in each of the last 20 years. The figures are prepared for the *American Agriculturist* from Congressional Documents. (The first column gives more than Table *B*, as it includes the Sheep on ranches, etc.)

Year.	*Raised. Pounds.*	*Import'd Pounds.*	*Exported. Pounds*	*Used Here. Pounds.*
1830	52,516,959	18,695,294	35,898	71,176,355
1862	90,000,000	42,131,061	1,486,341	130,644,720
1863	106,000,000	73,934,944	1,064,572	178,867,372
1864	123,000,000	90,464,002	375,957	213,065,045
1865	142,000,000	43,840,154	1,145,468	184,694,691
1866	155,000,000	76,532,274	1,824,720	229,707,554
1867	160,000,000	16,558,046	926,005	175,632,041
1868	168,000,000	24,124,803	3,360,287	188,764,516
1869	180,000,000	39,275,926	786,804	218,489,122
1870	162,000,000	49,230,199	1,862,945	209,367,254
1871	160,000,000	68,058,028	1,330,706	226,727,322
1872	150,000,000	122,256,499	2,406,908	269,849,591
1873	158,000,000	85,496,049	7,115,515	236,380,534
1874	170,000,000	42,939,541	7,135,757	205,803,784
1875	181,000,000	54,901,760	3,745,661	232,156,099
1876	192,000,000	44,642,896	1,623,194	235,019,642
1877	200,000,000	42,171,192	3,168,556	239,002,636
1878	208,250,000	48,449,079	6,300,075	249,149,004
1879	211,000,000	39,005,155	4,165,400	245,839,755
1880	232,500,000	128,131,747	3,840,071	356,791,676
1881	264,000,000	55,964,286	5,578,989	314,385,247

The home production increased in ten years (1871 to 1881) from 160 to 264 millions lbs., or over sixty per cent, while the total population increased only 30 per cent, from about 38½ to 50 millions. The average home consumption of wool for the whole population in 1871, was 5 lbs. 14 ounces, and in 1881 it rose to 6 lbs. 3¼ ounces, an increase of 6¼ per cent. In 1880, however, the home consumption was 7 lbs. and 1⅛ ounces per head, of which 36 per cent was imported wool. The smallest wool crop in 15 years past occurred in 1872; while last year's clip was 32½ million pounds in excess of any previous year. The lightest consumption was in 1873, following the light clip of 1872. A comparison of the various figures for different years, will afford the reader several interesting deductions.

The Leading Grain States.

The interesting grouping and comparisons of the States, and other items, have been specially prepared for the *American Agriculturist*, with much labor, from various official reports for the year 1880. The data are from the crop of 1879. The rapid development of Kansas and Nebraska, Dakota, Northwestern Minnesota, and of the Pacific Coast, has already changed the relative position in some instances; but these are the only complete figures that will be available for ten years to come—until the Census for 1890; and they will serve for general reference.—We first give the totals for all the States and Territories, and the average per acre in bushels—carrying the figures out to two decimals:

TOTAL ACREAGE AND YIELD IN BUSHELS.

Total in U. S.	*Bushels.*	*Acres.*	*Average Per Acre.*
Corn	1,754,861,535	62,368,869	27.01
Wheat	459,479,505	35,430,052	12.97
Oats	407,858,999	16,144,593	25.26
Barley	44,113,495	1,997,717	22.08
Rye	19,831,595	1,842,303	17.76
Buckwheat	11,817,327	848,389	13.09
Total	2,697,962,456	118,631,923	22.75

Leading Wheat States.—The following 14 States were credited with over 10,000,000 bushels each, and with an aggregate of 398,144,457 bushels, this being 86¼ per cent, or nearly seven-eighths of the Wheat crop of the entire country. ☞The first 6 States had 245,698,002 bushels, or over half (53¼ per cent) of the total crop, or about 32,000,000 bushels more than all the other 41 States and Territories. The great differences in the yield per acre in the different States is noteworthy—from 9½ in some States to 19¼ bushels in Michigan!

Wheat States.	*Bushels.*	*Acres.*	*Average Per Acre.*
1—Illinois	51,110,502	3,218,542	15.89
2—Indiana	47,284,853	2,619,695	18.05
3—Ohio	46,014,869	2,556,134	18.00
4—Michigan	35,532,543	1,822,749	19.60
5—Minnesota	34,601,030	3,044,670	11.36
6—Iowa	31,154,205	3,049,288	10.22
7—California	29,017,707	1,832,429	15.84
8—Missouri	24,966,627	2,074,394	12.04
9—Wisconsin	24,884,689	2,298,513	10.83
10—Pennsylvania	19,462,405	1,445,384	13.60
11—Kansas	17,324,141	1,861,402	9.31
12—Nebraska	13,847,007	1,469,865	9.42
13—New York	11,587,766	736,611	15.61
14—Kentucky	11,356,113	1,160,108	9.79

Leading Indian Corn States.—The three States of Illinois, Indiana and Missouri, are credited with 803,302,451 bushels, or nearly half (45.8 per cent) of the crop of the entire country, and the first named 10 States produced nearly four-fifths (78.8 per cent) of the whole.—A remarkable range is the product per acre—from 8.81 in Florida, and 9 in South Carolina, up to 41¼ in Iowa.—Massachusetts and Connecticut are alike in yield per acre, and Vermont and New Hampshire are nearly so.

Indian Corn States.	*Bushels.*	*Acres.*	*Average Per Acre.*
1—Illnois	325,792,481	9,019,381	36.13
2—Iowa	275,024,247	6,616,144	41.57
3—Missouri	202,485,723	5,588,265	36.23
4—Indiana	115,482,300	3,678,420	31.39
5—Ohio	111,877,124	3,281,923	34.08
6—Kansas	105,729,325	3,417,817	30.93
7—Kentucky	72,852,263	3,021,176	24.11
8—Nebraska	65,450,135	1,630,660	40.14
9—Tennessee	62,764,429	2,904,878	21.61
10—Pennsylvania	45,821,531	1,373,270	33.37
11—Wisconsin	33,230,579	1,015,293	33.71
12—Michigan	32,461,452	919,792	35.29
13—Virginia	29,106,661	1,767,567	16.46
14—Texas	29,065,172	2,468,587	11.77
15—North Carolina	28,019,839	2,305,419	12.15
16—New York	25,875,480	779,272	33.20
17—Alabama	25,451,278	2,055,929	12.38
18—Arkansas	24,156,417	1,298,310	18.61
19—Georgia	23,202,018	2,538,733	9.14
20—Mississippi	21,340,800	1,570,550	13.59
21—Maryland	15,968,533	664,928	24.01
22—Minnesota	14,831,741	438,737	31.81
23—West Virginia	14,090,609	565,785	24,90
24—South Carolina	11,767,099	1,303,404	9.03
25—New Jersey	11,150,707	344,555	32.07
26—Louisiana	9,906,189	742,728	13.34
27—Delaware	3,894,264	202,120	19.27
28—Florida	3,174,234	360,294	8.81
29—Vermont	2,014,271	55,249	36.46
30—Dakota	2,000,864	90,852	22.02
31—California	1,993,325	71,781	27.77
32—Connecticut	1,880,421	55,796	33.70
33—Massachusetts	1,797,593	53,344	33.70
34—New Hampshire	1,350,248	36,612	36.88

Leading Oats Growing States.—The revised official figures very slightly change our summary given in May. Illinois leads here again. The following 22 States yield over 3,000,000 bushels each. The first *five* yield 28,000,000 more than all the other 42 States and Territories; and the first ten about four-fifths of the entire crop. The average yield per acre varies from less than 10 bushels to over 37 in Vermont, Minnesota coming next.

Oats States.	*Bushels.*	*Acres.*	*Average Per Acre.*
1—Illinois	63,289,200	1,959,889	32.29
2—Iowa	50,610,591	1,507,577	33.57
3—New York	37,575,516	1,261,171	29.80
4—Pennsylvania	33,841,439	1,237,593	27.36
5—Wisconsin	32,905,320	955,597	34.43
6—Ohio	28,664,505	910,388	31.48
7—Minnesota	23,382,158	617,469	37.86
8—Missouri	20,670,958	968,473	21.34
9—Michigan	18,190,793	536,187	33.93
10—Indiana	15,599,518	623,531	25.02
11—Kansas	8,180,385	435,859	18.77
12—Nebraska	6,555,875	250,457	26.18
13—Georgia	5,548,743	612,778	9.06
14—Virginia	5,333,181	563,443	9.47
15—Texas	4,893,359	238,010	20.56
16—Tennessee	4,722,190	468,566	10.08
17—Kentucky	4,580,738	403,416	11.35
18—Oregon	4,385,650	151,624	28.92
19—North Carolina	3,838,068	500,415	76.69
20—Vermont	3,742,282	99,548	37.51
21—New Jersey	3,710,573	137,422	27.00
22—Alabama	3,039,639	324,628	9.36

Leading Rye Growing States.—Only one bushel of Rye is grown for 23 bushels of Wheat; the total Census crop of Rye was under 20,000,000 bushels.—We would expect this to be a prominent crop in the New England States, where "Rye and Indian bread" is popularly supposed to be a leading food; but the six New England States produced only 730,255 bushels, or less than one-fifth of the crop of Pennsylvania, Connecticut yielding over half of this (370,733). Only eight States raised 500,000 bushels each, and Nebraska nearly that.—The first three States give nearly half the entire crop, and the eight nearly four-fifths of all (78 per cent).—The yield per acre varies from 8 bushels in New Jersey and Kentucky, to 16½ in Illinois.

Rye States.	*Bushels.*	*Acres.*	*Average Per Acre.*
1—Pennsylvania	3,683,621	348,465	10,57
2—Illinois	3,121,785	192,138	16.25
3—New York	2,634,690	244,923	10.76
4—Wisconsin	2,298,513	169,692	13.56
5—Iowa	1,518,635	102,607	14.80
6—New Jersey	949,064	106,025	8.00
7—Kentucky	668,050	84,417	7.92
8—Missouri	535,426	46,484	11.52

Leading Barley States.—California leads far ahead. The first four States raised two-thirds of all the Barley grown in the country. The yield per acre varies all the way from 15 to 31 bushels.

Barley States.	*Bushels.*	*Acres.*	*Average Per Acre.*
1—California	12,579,561	586,340	21.45
2—New York	7,792,062	356,629	21.85
3—Wisconsin	5,043.118	204.335	24.68
4—Iowa	4.022.588	198,861	20.23
5—Minnesota	2,992,965	116.020	25.88
6—Nebraska	1,744.686	115,201	15.15
7—Ohio	1,707,129	57,482	29.72
8—Illinois	1,229.523	55,267	22.25
9—Michigan	1,204.316	54,506	22.10
10—Oregon	920,977	29,311	31.42

Leading Buckwheat States.—New York with 4,461,200 bushels, and Pennsylvania with 3,593,326 bushels, produce about 70 per cent of all this crop that is grown. New Jersey, with 466,414 bushels, and Michigan, with 416,662 bushels, yield the largest in other States. New York averages over 15 bushels per acre, and Pennsylvania over 19.

Birds and the Potato Beetle.—The number of birds known to feed upon the Colorado Beetle is so few, that every addition to the list is interesting. DeCost Smith, Esq., Onondago Co., N. Y., writes us, that in dissecting a Wood, or Long Thrush (*Turdus mustelinus*,) he discovered in the stomach several Potato Bugs (*Doryphora, 10-lineata*,) one of them being entire. Mr. S. thinks that the Oriole, or Golden Robin, also feeds upon the insect, though he has not, as with the Thrush, conclusive proof. The Crow, thus far, is the most useful bird to the potato grower, though it is the most unkindly treated of all, and considered an enemy in almost all parts of the country.

Painting Houses.

BY E. E. REXFORD, SHIOCTON, WIS.

In going through the country, the eye is wearied by the steady succession of white houses, usually with green blinds and red chimneys. Why we see so few houses of other colors, I am unable to say. Perhaps white is adhered to from force of habit. A house so dazzling in its whiteness that it could be seen from anywhere within a goodly circle of miles, like a white spot in a green map, was our fathers' highest idea of beauty. We became used to seeing what they thought was particularly fine, and when we came to build houses of our own, we quite naturally did as our fathers did. The consequence is that white houses glare at us everywhere we go. If they are toned down with trees and vines, the effect is not so bad, but I can conceive of no more self-asserting and disagreeable feature in a landscape than a great white house, standing in an open yard, unless it is a *red* one. In summer the contrast between a white house and the landscape is too strong. In winter there is none.

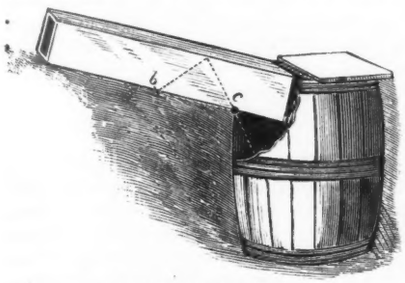
Before painting a house, we should study the landscape about it, and decide on a color that will be in harmony with it. We do not want a green house. I do not mean that when I say we should select a color in harmony, but I mean a color that is in contrast with the prevailing tints of the landscape, and does not conflict with them. There is no reason why two harmonizing colors should not be in complete contrast with each other. A great many people get the idea that harmony of color means similarity, and that contrast means conflict. This is not the case. Drab and blue contrast strongly with each other, but there is complete harmony between them.

For country houses I would advise for open, exposed places, a pale gray, or drab. There are complaints made frequently that drab looks cold. It can not look colder than white does, and there is no reason why it should look cold at all, if proper care is taken to have the trimmings of the house of some warm, cheerful color. I know a drab house with deep, warm-toned brown cornice and blinds, with plenty of vines clambering up it to break the monotony of the surface between the windows, and it is one of the warmest-looking houses I know of. In the summer it is refreshing to look at it. It does not pain the eyes with its glare. It does not assert itself the moment you reach the top of the hill and come within sight of it. A white house would draw your attention at once; and no matter how you might try to look at something else, the white blotch on the landscape would leave its impression in your eye, and you could not help seeing it. This gray house seems part of the landscape. Its colors blend well with the green about it. There are no large trees around it, but there are vines, and the general effect in summer is cool and subdued, and in winter it gives a sense of warmth and comfort. Why it gives a sensation of warmth at one season and of coolness at another, is explained by the fact that summer is a season of high, bright colors, and the drab is in a lower tone of color than those prevailing in the landscape. Winter is a season of but little color, and then drab, in contrast with the snow-covered earth, becomes cheerful, and the deep-toned trimmings, which should be seen on every house painted in drabs or grays, give a sense of warmth which they would not have in summer when all about it is in high, decided tones.

I am glad that we see fewer new houses painted white now than formerly. The taste of the people is being educated to a more correct knowledge of what is fitting and appropriate. In time to come we shall see few white houses, and no bright red barns to give us a sense of intense heat and consequent bodily discomfort on a summer day, when we are trying to keep cool.

A Rabbit Trap.

Mr. S. R. McConn, Bates Co., Mo., sends us a sketch and description of an excellent rabbit trap. He writes: Rabbits are a great nuisance here, both in the garden and orchard, and a trap of the following kind put in a blackberry patch, or some place where they like to hide, will thin them out wonderfully. A common salt barrel, with a notch sawed out at top, is set in the ground level with the



A GOOD RABBIT TRAP.

top. There is an entrance box, four feet long, with side pieces seven inches wide—top and bottom four and a half or five inches. The bottom board is cut in two at *b*, and is somewhat narrower than in front, that it may tilt easily on a pivot at *c*. A small washer should be placed on each side of the trap at *c*, that it may not bind in tilting. The distance from *b* to *c* should be somewhat longer than from *c* to *d*, that the board will fall back in place after being tipped. No bait is required, because a rabbit (hare) is always looking for a place of security. The bottom of the box should be even with the top of the ground at the entrance to the top of the barrel. The barrel should be covered closely with a board, as shown in the engraving. Remove the rabbits from the trap as fast as they are caught.

Brood-Sow Pens.

BY A. D. FIELD, WARREN CO., IOWA.

The accompanying figures represent a convenient arrangement for brood sows. The

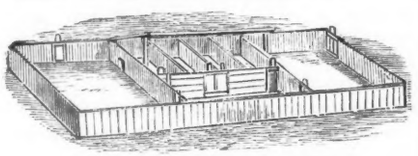


Fig. 1.—PLAN OF CHEAP PIG-PEN.

pens are not equal to the costly piggeries of wealthy breeders, but they answer a good purpose here, in a new country, where we are obliged to get along cheaply. Many of my neighbors who have built expensive houses say my pens answer a better purpose than theirs. First, there is a tightly-boarded pen (except in front), 16 by 12 feet. This is divided into four nests, 12 by 4 feet. A shed roof extends 8 feet from the rear. The tops of the nests are covered with boards, and the space between this room and the roof is filled with straw, making it wind-tight, except in front. When young pigs are expected during the cold weather of winter, I hang a gunny sack in front of the nest. The doors, figure 2, are the most convenient of any I have tried. The board door is slipped in from the top, between pairs of cross-boards in the pig-pen.

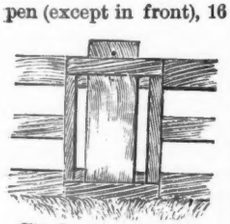


Fig. 2.—DOOR TO PEN.

Seeding Down With and Upon Root-Crops.

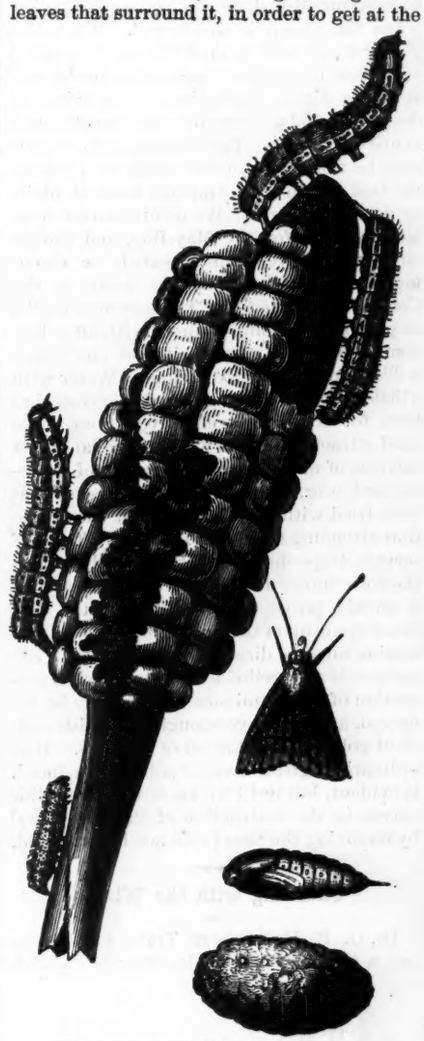
Farmers so habitually follow in the time-honored ruts of their fathers, that they do not take kindly to innovations of any sort. Seeding to grass with root-crops, however new to our old-fashioned round-about practice, is nevertheless a very good plan. Sowing grass-seed with grain of any kind is unphilosophical, inasmuch as grass and grain, being plants of the same natural family, make similar drafts upon the soil. Root-crops draw different elements from the soil—at least in widely different proportions—so that clover and the grasses follow naturally in the rotation.

Land ought not to be laid down under any circumstances unless it is in condition to carry a grass crop several years. For this, as is well known, the soil should abound in residuary manure—that is, in manure which other crops have failed to take, and which is therefore left as an accumulation of fertility in the soil. We can not ordinarily plan so as not to have considerable residuary manure left after every manured crop; so we put grass at the end of the rotation, to occupy the soil so long as it makes good returns.

To seed down with turnips sowed broadcast, the turnip-seed may be mixed with timothy and clover, and thus sowed very evenly—at all events, much more evenly than if sowed by itself. When seeding with red-top, orchard grass, or any of the light-seeded grasses, it will not do to mix the seed, for, in casting, the heavy turnip-seed would go much further. To seed down upon root-crops in drills, the grass-seed is not sowed until the roots are well established, and have been once or twice hoed. This will have levelled down the ridges to nearly a flat surface. The grass-seed is sowed broadcast just after the last hoeing and raked in, or just before the last hoeing, which will sufficiently disturb the surface to secure the covering of the seed. In the spring it will do very well to trust to rains beating grass-seed into the soil, but in mid-summer this is an unsafe reliance. After pulling the roots, the field should be well rolled, so as to give it an even surface for future convenience.

The Corn Worm.

About the time the field-corn reaches the "roasting-ear" state, and earlier with sweet-corn, there arrive by mail and by other means, numerous ears of corn with sad complaints of the worm, which we shall find within the ear. This caterpillar (*Heliothis armigera*,) to many known as the "Corn-worm," is the same insect that troubles the cotton grower by attacking the forming seed vessel, and is known to him as the "Boll-worm." Not only does it feed to a destructive extent upon these widely unlike plants, but in some of the Western States, it is the worst enemy with which the tomato-grower has to contend; it is also destructive to green peas, and has been known to attack young pumpkins. String-beans, lucerne, hemp and tobacco, are other plants it has been known to eat. It also visits the flower garden for a feast upon the buds of the gladiolus. Its geographical range is in keeping with its great variety of food, it being reported as occurring in the Isle of Wight, in Australia, and in Japan. Though it is most generally noticed when it attacks the corn in the ear, it is now known that in some places, at least, an earlier brood feeds upon the staminate flowers, or "tassel," eating through the leaves that surround it, in order to get at the



THE CORN WORM (*Heliothis armigera*).

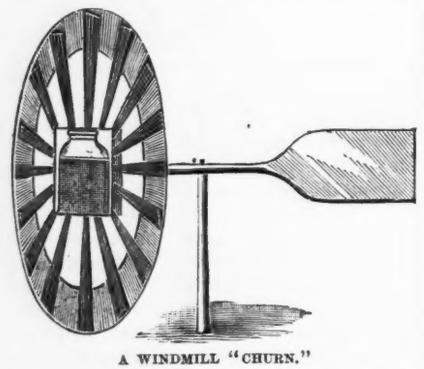
tassel before it is developed. The engraving represents the caterpillar of different ages. It is so variable in color, one might suppose there were several species, as the individuals are all the way from light-green to dark-brown. In all, however, the body is marked with alternate light and dark lines, with numerous black spots from which soft hairs are produced. When full-grown, the caterpillar enters the earth, and there forms a cocoon of silk, intermingled with earth, and assumes the pupa state. In three or four weeks, the perfect insect appears as a moth of variable color, but generally of a pale clay-yellow, with a faint greenish tint, with pale olive and brownish markings. The different stages of the insect are shown in the engraving; below, at the right hand is the cocoon, the pupa next above, and then the moth, all of the real size.

The moth deposits her eggs upon the "silk" of the corn, and the young caterpillars make their way beneath the husks to the growing kernels where they riot and make sad work;

their presence is usually indicated by a premature drying of the silk. They are more numerous in some years than in others, but upon the whole are apparently increasing, at least in the Eastern States. In Kansas, in 1860, the corn crop was so much injured by this worm, that in some counties the yield was only about one-eighth of the usual amount, and this of inferior quality. As the presence of this insect is not suspected until the mischief has been accomplished, no remedy can be applied when the enemy is discovered. When the young worm has entered the ear it is safe; even were its presence known, the husks prevent the direct application of anything to destroy it, and all remedies must be of a preventive character. That which, from experience in the cotton fields, seems to promise the best results, is to trap the moth at night by means of a light. We mentioned not long ago the traps for the May-Bug, and similar lamp-traps have been invented for catching this, and especially the moth of the Cotton Worm (*Aletia*). These are much alike in principle; a lamp with or without a lantern, is placed in a broad shallow pan which holds some destructive liquid. Water with a little kerosene floating upon the surface, has been found the most effective. Some have used attractive liquids without the lamp. A mixture of molasses and vinegar, or of molasses and beer, without and with arsenic, has been tried with some success, but inferior to that attending the use of the lamp. To be of service, traps should be set very early, before the corn shows any sign of tassel or ear. If it should prove that in all cases the first brood feeds upon the undeveloped tassel, attention must be directed to this brood. Experiments are needed to determine what proportion of the staminate flowers may be removed, and yet leave enough to furnish sufficient pollen to fertilize all of the ears. That ordinarily a great excess of pollen is produced, is evident, but until we know how great this excess is, the destruction of the first brood by removing the tassel can not be practised.

Churning with the Wind.

Dr. G. P. Hachenberg, Travis Co., Texas, has a "churn" which he describes as follows: "I place the cream in a large glass, air-tight jar, about two-thirds full, and adjust the jar in line of the axis of a windmill, swung low to the ground, as shown in the engraving herewith. The jar is placed inside of a box, which keeps the cream cool, as well as in its proper place. In very hot weather, ice wrapped in woollen cloth may be placed within the box, around the jar. As the windmill revolves, the jar turns with its axis, thus keeping up an agitation of the cream until the churning is effected. A convenient method to churn by this process, is to put the cream in the jar in the evening, and remove the butter in the morning. The butter is not only made, but thoroughly worked, and taken out in a fine, firm ball. We might call this the tumbling process."



A WINDMILL "CHURN."

Wire Fences, and Bracing Them.

A good fence on the farm is of the greatest importance, and suggestions as to the best kinds, and the building of them, are valuable. There are but few sections of our country where any fence can be erected so cheaply as the common barbed wire fence, now being used so extensively throughout the Western States. A wire fence, properly put up, is as effectual in turning stock, which has become accustomed to it, as a stone wall or a board fence; and although an animal may be occasionally injured, there is on the whole but little danger to be apprehended in using it.

METHODS OF BRACING WIRE FENCE POSTS.

Four wires, all barbed, are generally used. The fence could be made much cheaper, and nearly or quite as effective, by using two strands of common wire in connection with two barbed wires, placing them alternately, a barbed wire at the bottom, about one foot from the ground for cattle, and closer for sheep. To turn horses and cattle, it is well to fasten a strip of lath, whitewashed or painted white, to the top wire. This aids the stock in determining the proximity to a fence in the dusk, when, without this, they might run into it and be injured.

The most essential thing to observe in building a wire fence is the bracing of the end-posts. They are usually braced from the inside, which I think is a mistake, as the wires always have a tendency to lift the posts from the ground, and thereby become slack. A far better way is as follows: Take a $^3/_8$-inch rod and bolt one end through the post, between the uppermost two wires, shown at *a* in the engraving, and fasten the other end of the rod to a large stone or log, sunk three or four feet below the surface on the outside of the post. When it is desirable to drive nearer the end post than the brace will allow, the second post may be braced, *b*, and the support carried to the end-post by means of a piece of scantling, *c*. Braced in this manner, the wires have a tendency to pull down the end-posts instead of lifting them; and when the work is properly done, a fence will remain in place, and be of service until two-thirds of the posts have rotted off. A stretcher is not only convenient but necessary in facilitating the construction of a well-built wire fence.

F. H. McFARLAND, Dallas Co., Iowa.

The Root Crop.—The active growth of the root crop takes place late in the season, and in this respect it differs materially from the cereals. The grains begin to "shoot" in early spring, and conclude growing before midsummer arrives. During the hot weather, the nitrates are formed in the greatest abundance by the chemical process called nitrification. These compounds are very soluble, and if no crop is on the soil, they are washed out to a large extent by the rains. The roots—Turnips, Swedes, Mangolds, etc., take up these compounds of nitrogen, and use them in growth. In this way they are not only saved, but become an important element of the food of animals. After passing through and serving the farm stock, they are in large part returned to the land, to feed succeeding crops. The root crop does not grow to itself alone, and therefore should be a part of a rotation, where fertility of the soil is to be kept up, and good crops raised at the same time.

Attractive Country Roads.

BY EBEN E. REXFORD.

At the West we rarely see a country road that has much attractiveness about it, save in the newly-settled portions, where men have not had time to commit the wholesale sacrilege of destroying every tree and shrub. There is no reason why our roads should not be made as pleasant as our farms. They can be, at little expense. Leave the work of beautifying them to Nature. Every year she makes an effort to do what man fights against persistently. Trees start up along the fences, and shrubs take shelter behind old logs, and stones, and stumps, and make an effort to obtain a foothold there. If these could be left to grow, it would not be long before a now bare and cheerless strip of road would become a pleasant thing to see. In travelling over it, a constant succession of delightful views would be afforded, and the eye and the mind would enjoy the variety.

I wish I could prevail on every road-master to leave a tree here and there, to grow, in a few years, into a beauty and a blessing. Let them make nooks by the wayside, where weary travellers can pause beneath the shade on summer days, and rest. Let shrubs grow by the rocks and in the fence corners. I do not mean that they should allow *every* bush to grow, until the road-side becomes a thicket, but that a few of the many Nature has planted should be left to help break up the monotony of the highway. At the West most roads are straight, and consequently lack the charm of angle and curve, which characterizes the roads among the Eastern hills. The only way in which the monotony of these straight, level roads, can be overcome, is by breaking up the sameness, by allowing trees to grow, and encouraging Nature in her efforts to reclaim the landscape that has been wrested from her control. We lose sight of the beautiful in our efforts to "get ahead." They understand these things better in the Old World, where nothing is more beautiful and picturesque than bits of road-side scenery, usually bordered by hedges.

The main object of a road is, of course, its usefulness, and a road cannot be too good. But usefulness and beauty can be made to go hand in hand. In making a road ornamental, it by no means follows that we neglect the practical questions of how it can best be made to serve the purposes of travel. As a general thing, our roads are much too wide; they should be only wide enough to allow vehicles to pass. Ordinarily, there are two beaten tracks, with wide spaces between these and the fences, to grow up to weeds.

Sorrel.—Sheep's Sorrel.

From the number of specimens that have recently been sent us, it is evident that every one does not know that very common weed, generally, but incorrectly, called "Sorrel." The true Sorrel, of which there are several species, is very different from this, and may be readily distinguished by having a three-parted leaf, like that of clover. The proper name for the weed usually called "Sorrel" is Sheep's Sorrel (*Rumex acetosella*). It belongs to the same genus with the very much larger Docks. That it may be recognized, we give above an engraving of a rather diminutive plant. Its size is much affected by the character of the soil, as it grows from 2 inches high in poor soil to 20 in rich. The plant, especially in poor soil, is often reddish throughout, and where abundant, is conspicuous on that account. The lance-shaped leaves have at the base two spreading lobes, or, as the botanists say, are *hastate*, or at least the lower ones are thus shaped, and on long petioles, while the upper are sessile, and often without lobes. The flowers are in long slender racemes, the staminate, or male, and the pistillate, or female, in different plants; both kinds are very small, but the male (*a*) flowers are the largest. The female (*b*) are succeeded by a small brownish seed-like, three-cornered fruit (*c*). The leaves have an acid taste, like those of the true Sorrel. The plant is perennial, and has a creeping, much-branched root-stock, by which it spreads and takes possession of the soil. Sheep's Sorrel, though a native of Europe, is not mentioned in agricultural works as being a troublesome weed abroad. It is often the case with introduced plants, that they find here conditions favorable to their rapid increase, and acquire a reputation which they do not have at home. It is a common notion that lime is the proper antidote for this "Sorrel." The reason given is: lime, being an alkali, neutralizes the acid in the soil, and the plant being deprived of its acid, cannot grow. This sounds very "scientific," but it is not correct. Sheep's Sorrel no more derives its sourness from the acid in the soil, than does the sugar-beet get its sweetness from sugar in the soil. In both cases the products, the acid and the sugar, are formed in the plant itself. That lime is a useful aid in destroying the weed, we do not doubt; whatever enriches the ground and encourages the growth of grass and other plants, aids in exterminating weeds. This is not regarded as an especially stubborn weed; it readily gives way before good culture, and its abundance in a field indicates a poor condition of the soil.

SHEEP'S SORREL (*Rumex acetosella*).

A GROUP OF SMALL-FLOWERED LILIES.

Some Small-flowered Lilies.

Those who only know Lilies from the few large and showy kinds usually met with in gardens, would be surprised at the great number and variety that even a moderately full collection presents. Not only do Lilies differ widely in their habit, but in the range of color; they have flowers from the purest white to the most delicate yellow and buff, and the most intense of scarlets, with a vast number of intermediate shades—in fact, almost every color except blue is to be found among them. The range in stature and size of the flower is also great; the stem of the Giant Lily often reaches ten feet, and it is not rare for the flowers of the Golden-banded to exceed a foot in diameter. In marked contrast with these, there are several Lilies not over a foot in hight, and with flowers correspondingly small. If one wishes to take up a specialty in flower culture, there is scarcely any genus that offers so many attractions to the amateur as the Lily, and there is none that gives more satisfactory returns. The success that has attended the efforts of some who have produced new varieties, shows that there is much yet to be done in this direction, especially in the way of producing hybrids. We have been much interested in a number of the small-flowered species which have bloomed with us this summer, most of them for the first time. The Crimson Erect-flowered Lily (*Lilium concolor*, var. *pulchellum*, the central one in the engraving), is from Eastern Siberia; the bulb is scarcely an inch long, and has a stem about a foot high, which is surmounted by usually a single erect flower, though two and sometimes three are borne by strong plants. The flower, an inch and a half to two inches across, is more scarlet than crimson in color, and marked by very minute blackish dots. The Oregon Lily (*L. Columbianum*, at the left-hand), is a native of the Northwest. Strong plants are two feet high, but

ours, from small bulbs, were scarcely over a foot; the lower leaves are four or five in a whorl, but the upper ones are scattered. The flowers, one to three in number, are on slender stalks, which are nodding at the top; they are two inches or less across, with the petals curved strongly backwards from the middle. The color is pale orange-yellow, thickly covered with purple dots, but it varies, some specimens being deep orange. This species has long been known to botanists, who regarded it as a small variety of the eastern wild Yellow Lily (*L. Canadense*), but it was not until Mr. Hanson brought it into cultivation that it was found to have a very different bulb from that species. The Pyrenean Lily (*L. Pyreniacum,*) is two feet or more high, with very narrow leaves, and two to a dozen flowers, which are about two inches across; these are pale yellow, with black dots. The beauty of the flowers is marred by a tinge of green at the base. Some regard this as a yellow-flowered form of the Pompone Lily. It is one of the least showy, but is worthy of a place in a collection. More brilliant than either of the foregoing, and the most beautiful of all the small-flowered species, is the Slender-leaved Lily (*L. tenuifolium*, figured in May, 1878), which should be comprised in every collection of these plants. The bulb of these small Lilies is, in size, in keeping with the rest of the plant, and several may be planted in a medium-sized pot; indeed these more delicate Lilies are well adapted to pot culture, as their beauties are more readily seen than when they are in the border, and the bulbs can be more readily cared for. Those whose horticulture is confined to window gardening, will find the small Lilies of easy culture, and very effective in making a pleasing exhibition.

Monstrosities Among Plants.

Those who observe plants closely will frequently meet with malformations, or departures from the usual structure. These are not confined to any particular part of the plant, but the root, stem, leaves, flowers, and fruit, may each present them. Young people who search for "Four-leaved" or "Five-leaved" Clover, recognize the fact that malformation among leaves is not unusual. One of the simplest of these deviations from the ordinary manner of growth is, for two parts, usually separate, to cohere to one another. This is strikingly seen in what are termed "twin" fruits; "twin" cucumbers, cherries, peaches, and others are of common occurrence. Stems often unite to form a double stem, and we have seen a grape-vine, the tendrils of which, instead of branching in the usual manner, were all simple, on account of the cohesion of the branches to the main tendril. The engraving, about half the real size, is from a shoot cut from our Asparagus bed; the other shoots, from the same root, were of the usual form. In this the stem is flattened, to form a thin, wide band or plate, with little resemblance to an ordinary stalk of Asparagus. The stems of the Sweet-potato sometimes show a similar condition, extending for several feet. This kind of malformation is of such frequent occurrence in both herbs and trees, that botanists have given it a name. Such stems are said to be "fasciated," from the Latin, *fasciatus*, meaning swathed or bandaged. One side of stems of this kind often grows faster than the other, which causes them to twist, and they frequently have a more or less curved or a spiral form. It is supposed that these fasciated stems are formed by the union of the shoots from several buds. The common Thistle often has fasciated stems, and we have seen the flower-head flattened also, until it bore very little resemblance to an ordinary Thistle-head. The tendency to produce such stems is sometimes hereditary, and may be perpetuated by seed. This is notably the case in the garden Cockscomb (*Celosia cristata*), cultivated for its large, usually crimson, head or crest. This, which has been known to reach 18 inches across, is really a monstrosity, a remarkable example of fasciation. In its normal form, Cockscomb shows nothing of the crest, but in its place a cluster of slender, erect flower-stems, much like the Pyramidal Cockscombs. By the union or fasciation of these stems into a dense mass, the head is produced, the surface of which is covered with minute flowers. In this plant the peculiarity is fixed, and is continued with certainty by seed.

ASPARAGUS STEM.

The Worm in the Grape.

What a host of enemies beset the grape vine! Root, stem, bud, leaf, tendril, blossom, fruit, and even the seeds, are each subject to the attacks of one or several insects. These, as a general thing, attack the vine before the fruit is ripe, and if, after all, the fruit matures, the wasps and the birds are ready to claim their share. Notwithstanding all this, we manage to have grapes, and in plenty, so bountiful is the vine, and so abundantly does it repay a little care in protecting it from its enemies. It is within a comparatively few years that the Western vineyardists found they had an insect which served their grapes, much in the same manner that the Codling Moth does the apples; the Caterpillar or "Worm," living within the green fruit, and destroying it. It has on this account been called the "Grape Codling," but is more generally known as the Grape-berry Moth.

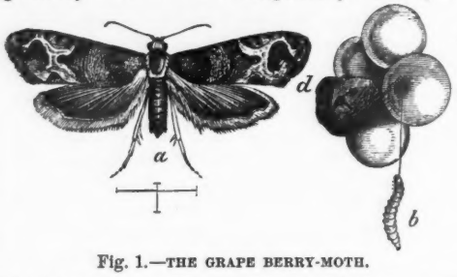


Fig. 1.—THE GRAPE BERRY-MOTH.

Thinking it to be a new species, Prof. Packard named it *Penthina vitivorana;* but later observations show that it is most probably identical with an European insect, in which case, *Lobesia botrana* will be the accepted scientific name. When the grapes are examined early in July, a small spot will be found where the worm entered, as shown in fig. 1, at *c;* if a grape thus marked, is opened, there will be found within a small white caterpillar, with a cinnamon-colored head, which feeds upon the pulp of the berry, and usually eats out the contents of the seeds. If one grape is not enough, it fastens the remains of that to a sound one, by means of silken threads, and makes its way into the second berry. The result is that the berries thus attacked shrivel and die, appearing as at *d*. The worm is very active, and when the fruit is disturbed it will wriggle out of it, and let itself down by its silken thread, as shown at *b*. At maturity it is olive-green or dark-brown, with a honey-yellow head, and it then leaves the ruined grape, to seek a place on the leaves of the vine, where it forms its cocoon.

Fig. 2.

Having selected a spot, it spins a covering of silk over it, and then cuts out an oval flap which is attached on one side, as if hinged, this flap is rolled over, its free edge fastened to the leaf, thus forming a shelter, within which it in two days turns to a chrysalis; fig. 2, shows at *a*, the chrysalis, and at *b*, the cocoon, the line showing the real size. The cocoon is sometimes made by cutting two pieces and joining them together in the middle, as in fig. 3. In about ten days the moth appears; it is of a slaty-brown color, with pale-buff markings, as seen at *a*, fig. 1. There are two, if not three broods, the pupæ of the last brood passing the winter in the cocoons. The insect has been especially destructive in Ohio, where one year it destroyed about half the grapes in the vineyards on the lake-shore; it is also abundant in Illinois, and Missouri, attacking in preference, the grapes with the most tender skins. As the last broods pass their winter in their cocoons on the leaves, it is evident that raking up and burning the fallen leaves, will do much to diminish this pest. The habit of the worm of leaving the berry when alarmed, and suspending itself by a thread, may be turned to good account in capturing this insect, where the number is not large.

Fig. 3.

Early Peaches.—"Waterloo" and "Alexander."

When one has aided in making known a new product of any kind, it is gratifying to have his first impressions of its value confirmed by experience. In October, 1878, we figured and described a new early Peach, the "Waterloo," the trees of which were not then in the market. Our specimens were from the original tree, and at that time seemed to show it to be a variety of great promise. On June 10th of this year we received specimens of the "Waterloo" from the orchard of a prominent peach-grower in Georgia, accompanied by those of the "Alexander," which has been heretofore the earliest Peach. The "Waterloo" was decidedly in advance of the other, apparently a week, while in size and beauty of coloring, it was vastly superior. Were it no earlier, its rich, full color, exceeding that of any other early variety within our knowledge, would give it preference. Another important point is, its excellent shipping qualities; it was in eating condition when received, and remained three

or four days without showing signs of decay. The "Alexander" is now attracting much attention abroad, as being earlier than any European variety. Mr. Rivers, of England, whose father originated the "Early Beatrice," states that the "Alexander" is earlier than that variety, and he might have added, that it is also much larger and finer. The improvement in early Peaches in the past ten years is most marked, and there is reason to hope for still more, if not in the direction of earliness, at least in that of size.

A Lawn Weed—Star of Bethlehem.

(*Ornithogalum umbellatum.*)

A number of the weeds of cultivation, and some of the most troublesome, were first introduced as garden plants. Escaping from the gardens and finding the climate favorable to their increase, they have become so common that they are no longer cultivated and are now only known as weeds. One of these is the "Star of Bethlehem." This has a bulb about an inch in diameter, which produces narrow, grass-like leaves, a foot or less in length, and with a whitish stripe along the center; they die early in the season. The stout flower-stalk, about six inches high when the flowers first appear, increases later in the season to a foot in hight. The flowers are at first in a flat cluster, but the stem and flower-stalks elongate, and later it has a very different appearance, being open and the flowers scattered. Each lily-like flower is about an inch in diameter, pure white within, but each division is marked on the outside by a broad green stripe for its whole length; the flowers are succeeded by a somewhat three-angled pod. The plant, originally a native of Southern Europe, is naturalized in England and throughout Northern Europe. Its roots are said to be palatable when boiled and to afford a nutritious food. Besides Star of Bethlehem, a name suggested by its star-like flowers, it has others derived from the late opening and early closing of its flowers; it is sometimes called Eleven O'clock Lady," and

THE STAR OF BETHLEHEM.

"Johnny-go-to-bed." The name *Ornithogalum* was given it by the ancients; it means "bird's milk," but the reason for its application is not known. It is believed that the bulbs of this plant were the "dove's dung" mentioned in the Scriptures as having been sold at a high price during the siege of Samaria. In the gardens of half a century ago the Star of Bethlehem was a common plant. When it first opens in May it is rather pretty, and was regarded as worth growing on this account, and perhaps its name also commended it to our grandmothers. It is now quite common in most of the Eastern States, along road-sides and in grass lands. It multiplies its bulbs with great rapidity, and soon spreads and forms large clumps when once established, and the abundance of seed it produces is favorable to its increase and dispersion. A correspondent informs us that it is extending rapidly on Long Island, and that it is especially abundant in Prospect Park, Brooklyn, where it has such a foothold upon some of the lawns that it appears to be displacing the grass, while three or four years ago there was only a plant here and there. With this as with many other weeds, it may be easily eradicated if taken at its first invasion. We find that the plant is known to but very few, and its attractive appearance is such that those who notice it do not suspect its troublesome character. That it may be recognized on its first intrusion, we give an engraving of the plant as it appears when it first blooms. Whenever it occurs in the lawn, as it is there that it is likely to prove most troublesome, it should be dug up; if let alone for a few years it will spread to such an extent that it will be almost impossible to eradicate it. Wherever it may grow, do not allow it to ripen its seeds, as without these its progress is confined to the multiplication of the bulbs, and is comparatively slow.

Pruning and Training the Tomato.

A correspondent asks us to give precise directions for pruning the Tomato, with illustrations, in the same manner that we have done for the grape-vine. It is not practicable to do more than to give general directions, to be applied as the condition of the plant may require, as in an herb like the Tomato, we do not find that regularity of growth presented by the vine. The Tomato plant continues to grow, and to form new stems and new flower buds as long as warm weather lasts, and when the growth is stopped by the first frost, it will be loaded with a large quantity of green fruit of all sizes, as well as many flower buds. Here is a great waste of strength in the plant; it sets and contributes to the partial growth of a large quantity of fruit that can never mature. One of the first steps in the garden culture of the Tomato should be, to prevent the partial growth of all the fruit that can not be ripened. Of course no definite rule can be given as to the quantity to be removed, but each one must exercise his judgment. It is assumed that the plant is trained to a support or trellis of some sort, otherwise pruning would be of little use. One object in pruning should be to remove the superfluous small branches that are produced in abundance, and make a dense, confused mass of foliage. The pruning to remove the excess of fruit may be combined with this; the later flowers are borne upon the small, recently grown branches, and by removing these altogether, two ends are accomplished. When one of the main branches of the plant has set all the fruit it can ripen, it should be stopped, or prevented from growing any longer. An inspection of the Tomato plant will show that it produces its flowers and fruit in a different manner from most others. A flower-cluster generally springs from an axil, or where the leaf joins the stem, or, as in the grape, appears at a point opposite to

PRUNING THE TOMATO.

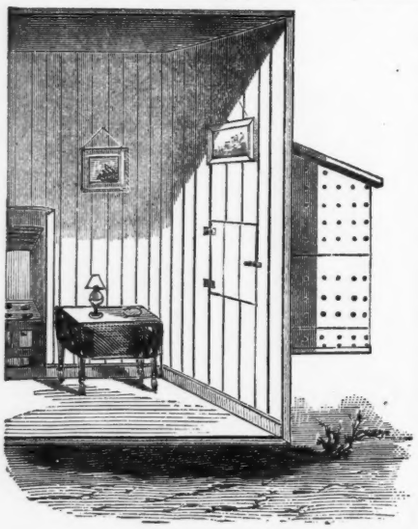
the leaf, while it is in the Tomato midway between two leaves, as shown in the diagram. In stopping the growth of a stem, there should always be a leaf left above the cluster, the line in the diagram showing where to cut; if desired, as a precaution against accidents, two leaves may be left; in this case removing the upper flower-cluster, should there be one above that which has been fixed upon to be the last one upon the stem. When the fruit is partly grown, it will be well to remove all that are deformed and misshapen, and if a cluster promises to be unusually heavy, it will be well to support it to the trellis by a bit of string. Thinning the crowded branches, removing the excess of fruit, and stopping the growth of stems after they have set sufficient fruit, are the ends to be aimed at in pruning the Tomato, and in these one operation usually includes the others. In applying these general rules, which are all that can be given, one, in the first attempt, is not in danger of pruning to excess, but of leaving too much. Those who grow the vegetable in field culture, gathering the fruit by the bushel, and wasting as much as they use, may ridicule the notion of training and pruning the Tomato. Many who have small gardens, and wish to make the most of them, find it a great saving of space, besides giving the garden an air of neatness, to train the Tomatoes to a trellis, and if this is done, pruning becomes a necessity. The ease with which the Tomato can be grown in our climate has led to its neglect, and we rarely have the fruit in its best condition. Some, who are fond of Tomatoes in the raw state, pay as much attention to the quality of the fruit as they do to that of an apple or a pear. Such will find that Tomatoes cultivated with care, fully developed, and thoroughly ripened in the manner indicated, are so greatly superior to those grown in the usual hap-hazard way, as to warrant the slight trouble it involves.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

A Side Closet for the Kitchen.

"Mrs. F.," sends us a sketch of a handy closet that she has used in her kitchen for two years, and writes: The closet is attached to the north side of my house, where the sun shines but little on the longest day of the year. It is two feet from the ground, 3 feet high, 4 feet wide, and 15



A WALL OR SIDE CLOSET.

inches deep. The top is made slanting to carry off the rain, and a strip of tin keeps the water from entering between the closet and the side of the house. The ends are bored full of small holes, to provide for ventilation. Fine wire netting is placed on the holes to keep out all insects. The closet is reached through a door 2 feet wide and 3 feet high, cut in the side of the kitchen. The door is made of the boards removed in cutting it, and shuts flush with the other boards, so that it is not easily noticed. This closet is found to be very handy for keeping many articles of food, etc., at all seasons of the year, and saves many steps to and from the cellar.

Something to Wear.

In a late fashion article a story is told of a poor woman who suddenly became rich, and felt obliged to dress as she had never done before. She had no idea what was "necessary," but a friend who was supposed to know all about it, and to speak as one having authority in such matters, advised her to abandon entirely all her old clothes and begin over completely. Then we are told what constitutes a complete "but not extravagant" wardrobe for those who can afford it. Made in the spring, and without any provision for winter clothing, it includes ten new dresses, most of them made chiefly of silk or satin; four parasols; five bonnets and hats; with a variety of fans, gloves, hosiery, and underwear, mantelets, visites, fichus, collars, etc.

The best part of this little story is that the woman herself did not really enjoy the change. It was her husband who urged it on. She parted regretfully with the dearly-bought garments selected by herself with care, and made according to her "uncultivated" taste, and she was afterwards discovered in a cheap store buying herself some cotton house-dresses, because her new clothes were so nice that she felt she had nothing to wear! Good for her! Let us all learn a lesson of contentment.

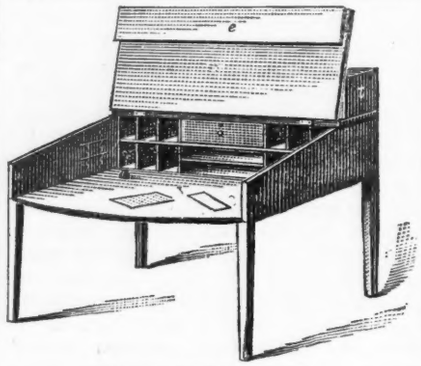
There is a pleasure in overcoming difficulties and "making things do," which is probably quite as great as the satisfaction of feeling that your costume is all right according to the latest fashion. If it is all right to-day, it may be all wrong to-morrow, for fashion's rules suddenly change. It is best to dress according to one's circumstances and work. The dress of a woman of fashion seems to say that she has no work to do in the world that is of more importance than the exhibition of dry goods, made up in curious forms. One cannot consistently claim to dress according to her work, whatever that work may be, so long as the free action of the limbs is hindered by drapery. But, leaving work aside, the necessities of popular recreations are creating a call for a dress that gives freedom to woman's limbs; and one costume for lawn tennis, mentioned in fashion articles, consists of a belted blouse, reaching just below the knee, and Turkish trowsers—the same dress for woman which the great man of fashion, Worth, is said to have recommended as the most beautiful, as well as most healthful, dress in the world. Dressing according to our circumstances, or position, is something each woman should decide for herself, though, in fact, little choice is left to many of us.

Men's Summer Underwear.

It is a very common practice for men and boys to dispense with drawers during hot summer weather. To one who has been brought up in their use, this practice seems unclean and unwholesome, unless the trowsers are made of washable material and frequently cleansed. Very thin cotton-woven garments are to be had, but it is an easy matter to make them from thin unbleached muslin. A cloth of very loose texture (almost like cheese-cloth) should be selected, as firm cloth is very hard to wash when soiled so badly as thin garments are apt to be. You can cut them by a pair of trowsers if you have no pattern, laying the garment on the folded cloth, so as to necessitate only one seam in the leg. This seam should be sloped toward the ankle, and left open about six inches at the bottom. The stockings stay in place much better with drawers than without. If there is trouble about their slipping down, or if low shoes make neatly-fitting hose especially desirable, a suitable elastic stocking suspender is easily provided. Sew a strong narrow strap of the same material as the drawers on the outside of each drawers leg, stitching it on lengthwise of the strap two or three inches, and leaving as many inches of the strap loose, with a button on the end. This may reach a little below the knee. Elastic straps (common rubber tape), with button-holes or loops on each end, should attach to the ends of these straps, and reach to the top of the stockings, to connect there with a button on the stocking. Now, if the drawers are secured at the waist, this will keep the under-suit in good fit. A few buttons sewed inside the waistband of the trowsers, and buttoned through the top of the drawers, will make the suspenders do duty for both garments.

Another Home-Made Desk.

Since the appearance of the desk that was illustrated in the March *American Agriculturist*, several have written me, desiring some form or combination



ANOTHER WRITING DESK.

in which they are not necessitated to write on the leaf or lid, and in accordance therewith I present the following form. This desk is large and roomy, and the writing materials are placed under cover, and are always in their place, ready for instant use. It being so plainly shown, only a few descriptive words will be necessary. A small cover, *e*, folds over and closes the front of the desk; pigeon holes and a small drawer can be arranged, as shown in the engraving; they may be placed in any other desirable position; the part at *t* could be arranged with shelves, or used as a book-case, or for holding papers and magazines. L. D. S.

Tomato Catsup—Tomato Sauce.

The basis of Tomato Catsup, or Ketchup, is the pulp of ripe Tomatoes. Many defer making Catsup until late in the season, when the cool nights cause the fruit to ripen slowly, and it may be it is gathered hurriedly for fear of a frost. The late fruit does not yield so rich a pulp as that gathered in its prime. The fruit should have all green portions cut out, and be stewed gently until thoroughly cooked. The pulp is then to be separated from the skins, by rubbing through a wire sieve, so fine as to retain the seeds. The liquor thus obtained, is to be evaporated to a thick pulp, over a slow fire, and should be stirred to prevent scorching. The degree of evaporation will depend upon how thick it is desired to have the catsup. We prefer to make it so that it will just pour freely from the bottle. We observe no regular rule in flavoring. Use sufficient salt. Season with Cloves, Allspice, and Mace, bruised and tied in a cloth, and boiled in the pulp; add a small quantity of powdered Cayenne. Some add the spices ground fine, directly to the pulp. A clove of garlic, bruised and tied in a cloth, to be boiled with the spices, imparts a delicious flavor. Some evaporate the pulp to a greater thickness than is needed, and then thin with vinegar or with wine. An excellent and useful tomato sauce may be made by preparing the pulp, but adding no spices, and putting it in small bottles while hot, corking securely and sealing. If desired, the sauce may be salted before bottling, but this is not essential. To add to soups, stews, sauces and made dishes, a sauce thus prepared is an excellent substitute for the fresh fruit. It should be put in small bottles, containing as much as will be wanted at once, as it will not keep long after opening.

Pickles and Pickling.

The number of questions which come to us every summer on the subject of pickles, is very great. The purport of a majority of these is: "How can we put up pickles to look like those sold in jars at the stores?"—The fine appearance of these pickles in bottles, is due to two things: They are made green by the use of copper, and the vinegar is colorless. It is called "White-wine vinegar," but is really made from whiskey. So far as health goes, this vinegar is as wholesome as any other, but it is entirely lacking in the pleasant odor and taste of Cider vinegar. Handsome pickles can not be made with Cider vinegar, but they are a great deal better. The pickles are greened by soaking them to free them from salt, in a copper vessel, or most generally by the use of Verdigris, which is the acetate of copper. As we do not advise the making of pickles green by this process, we do not give the details. Such pickles should not be bought, and ought not to be sold. Serious results may follow the continued use of even the minute quantity of copper these handsome pickles contain.

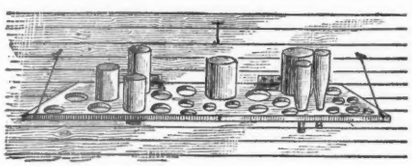
At the pickle-factories, the owners contract with the growers for cucumbers of a size that may be agreed upon, at a fixed price per thousand. If the size is small, the vines must be looked over every day or two. Whatever the size, they must always be cut from the vines, with the stems left on them. At the factories they are placed in large wooden vats, using half a bushel of salt, to five bushels of cucumbers, with water enough to cover them. In salting them for home use, an ordinary whiskey or alcohol barrel may be used, removing one head, and making a follower of boards, to keep the cucumbers under the brine. The cucumbers are placed in the barrel as they are picked, and salt sprinkled among them. When the barrel is half

full, add water to cover the cucumbers; as more are added, use more salt, and water if needed, to cover them, using half a bushel of salt to the barrel. When full, head up the barrel, knock out the bung, and fill up completely with water. In tight barrels cucumbers in a brine of this strength, will keep for a long time. In salting small quantities, a brine strong enough to float a potato may be poured over the cucumbers, placed in a jar or keg. It takes about a month for the brine to thoroughly penetrate them, and make them fit for putting into vinegar. For family use, most persons prefer the cucumbers rather larger than those sold in bottles; whatever the size fixed upon, it is desirable to have all in the same lot as nearly of a size as possible.

The following vegetables may be salted in the same manner: Green Tomatoes, String Beans, Green Peppers, Martynias (taken when very tender), and unripe Melons with the contents removed through a hole made in the side. Peppers have a slit made in them to admit the brine into the interior. At the pickle-factories, great care is taken to use only the purest salt; that containing lime is said to cause decay. Coarse salt in crystals is the best.

Side-Shelf for Draining Bottles.

Bottles for holding fruit, catsup, etc., should, when emptied of their contents, be thoroughly dried and aired, after being well washed and rinsed, or when they are refilled the fruit will not keep well.



SIDE-SHELF FOR BOTTLES.

It is a hazardous undertaking to stand bottles up on a table to drain, especially the long, slender ones so often used for holding catsup, for the least jar may send them over and break them. Besides, when stood up on a table, although they will be well drained, the air is not free to circulate through them. Sometimes I have used a simple little contrivance which overcame both difficulties. It is a board 4 feet long and 15 inches wide, in which are over two dozen various sized holes, the largest of sufficient diameter to admit the mouth of a good-sized fruit jar, and the smallest large enough to hold the slender necks of catsup bottles. The board is fastened to the wall on a south porch by hinges. Twine strings pass through holes in each end of the board, and fastened to staples in the wall, hold it in place at the right angle. When not wanted, the shelf can be hooked up against the wall; but this is seldom necessary, for when not in use in holding bottles, it makes a handy temporary resting place for such articles as partly ripened tomatoes and seeds. MRS. BUSYHAND.

What Shall We Eat?

BY A MINNESOTA HOUSEKEEPER.

I never felt more at rest myself on that question than I do now. There is one thing, anyhow, always on hand—material for bread, which contains all of the elements needed for the growth and repair of the human body. All we need besides is "trimmings," and less of those, apparently, than ever before. Meat is fifty per cent higher than it was a year ago, but that fact is nothing to us. We do not "hanker after it" at all, and we live and grow and work hard and enjoy life without it

All this we had settled in our own minds before we saw that the entire wheat flour, mentioned last month, had been examined by a doctor with the microscope, and found to be the best of many different kinds of flour. He commends the large proportion of "gluten-cells," and speaks highly of it for children and invalids. Though we are not exactly invalids nor infants, we believe that the flour which is best for them is best for us also, to keep us in health and to promote healthy growth.

I smiled as I read over the last article I wrote about bread, for I suspect that I have said my last good word for white bread. We had to go a month between our first half barrel and our next barrel of entire wheat flour, living on white bread and Graham. I had just baked an ovenful of white bread (uncommonly nice, I thought), when the new barrel came. It was two weeks from that time before I could get all of that white bread eaten in any shape, mostly in toast, the last in pancakes, which is expensive and bothersome, and less wholesome, I think, than the best of bread. The only decent Graham we can get costs six cents a pound, and as about one-third of that is bran, the nourishment it contains costs us as much as eight cents a pound.

Whiteness has long been considered one of the most desirable qualities in bread. But how innutritious white bread looks to me lately! How rich and good the brown! Yet I never felt so about the coarse Graham. And then one needs to learn how to cook the new flour. However it is baked, it must have more room to swell than common flour and it must be thoroughly baked. A *soft* dough and a *thin* batter is the rule you must go by. As I find dry yeast most convenient, I usually scald a batter of the new flour at night, and when cool enough, stir in the soaked yeast. Before breakfast I stir this thick with flour and knead it well, not letting the dough get too stiff, put it directly into the pans to rise, and have the baking soon over. You can begin early in the morning, without scalding the flour, and have the baking done betimes if you use only the best and freshest yeast, and keep the sponge warm.

Perhaps a good word ought to be said for bran, after all, as a medicine! Those who have been long accustomed to its irritating action, to overcome the natural tendency of a sedentary life and full habit of living, cannot, perhaps, easily dispense with it. Some waste matter is undoubtedly necessary to promote digestion, but bran, for that purpose, seems dear at six cents per pound. All our fruits and various kinds of vegetables afford considerable waste matter, as well as does bran.

Cisterns Cheaply Made.

BY EBEN E. REXFORD.

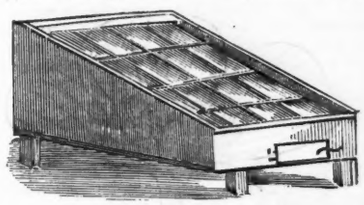
About the majority of country and village houses, one sees old barrels, with boards or troughs, and occasionally eave-spouts of tin, arranged to conduct water into them from the roof. The supply thus obtained is often inadequate to the wants of the family, and soon becomes unfit for use. Dead leaves, worms, all kinds of flying refuse, collect in the barrels, and they afford breeding places for myriads of mosquitoes; besides the supply of soft water is in a condition to use only a short time after a shower. Every house should have a cistern. None but those who have been accustomed to the use of soft water in domestic operations, know how much superior it is to hard. It not only makes things cleaner, but the labor of cleaning is greatly lessened, while hard water ruins woollens.

The expense of building cisterns is not large. In localities where the soil is composed principally of clay, I have seen them built by digging a hole in the ground, and plastering the exposed surface with water-lime. Generally a layer of stones is placed in the bottom, over which a thin mixture of lime and water is poured. This runs down among the stones, fills all the crevices, and settles into a smooth surface above them, and, when dry, forms a floor of sufficient thickness and hardness, to allow any one to tread upon it while cleaning out the cisterns, without danger of breaking the floor. Plaster the lime directly upon the slanting sides of earth, with a common trowel. Care should be taken to not mix up a great quantity at any one time, as the lime soon "sets," and it becomes impossible to smooth the walls properly, if too large a surface has been plastered over roughly, before beginning the smoothing process.

The top of the cistern should be well covered, and pains taken to see that the earth on which the wall is put, is below frost in winter, otherwise freezing is likely to crack the coat of lime, and cleave it off, or leave cracks, through which the water will soak out. If properly banked up in winter, such a cistern will last for years; it is quite as satisfactory, indeed, as one built up of brick or stone. An opening large enough to admit a person should be left in the covering. In cleaning it, the walls can be readily washed, and all slime completely removed by using a stiff scrubbing brush. Such a cistern costs but a few dollars in its construction, and will pay for itself in a short time.

Drying Fruit, etc., for Home Use.

In a former number we have suggested that those who dry fruit for market in the old-fashioned way can not hope to compete with that dried in the evaporators, and that it would be better for neighbors to co-operate in procuring the needed apparatus. By going to a little trouble, fruit for home use can be dried in much better condition than usual, by arranging a box covered with hot-bed sash. Though we illustrated this last year, yet so many have inquired about fruit-drying, that we reproduce the engraving. A suitable box, tight enough to keep out insects, is built; this is of a width and length to hold the desired number of sashes; hot-bed sashes are the best, as they are so made as to allow the rain to run off. The box should be raised some inches from the ground, upon legs, or placed upon pieces of joist. The important point is the ventilators; there should be an opening a foot long and 2 or 3 inches wide, at each sash, low down in front, and a similar one at the rear, near the top of the box. These openings are to be covered with wire-cloth, but mosquito netting or other open fabric, will answer. The articles to be dried may be placed upon cloths, spread upon the bottom of the box, but it will be much more rapid if placed upon trays, made by covering frames with some thin open material; these trays should be raised a few inches above the bottom of the box, so that the air may pass up through them. The drying will be done very rapidly, and the articles free from dust and all soiling by insects. The thinner the fruit is sliced the more rapid will be the drying. In drying sweet corn do not let it get too old, but take it in just the proper condition for the table, and cook it as if to be eaten before cutting it from the cobs.



A "HOT-BED" FRUIT DRYER.

Egg Gravy.—When eggs and butter are both dear, I sometimes make what we call an egg gravy for a dressing to bread and potatoes. Break and beat up light four *fresh* eggs, and mix thoroughly a thin paste made by stirring well together, a tablespoonful of flour, and about half a teacup of water. Heat to boiling one quart of sweet unskimmed milk, and just as it boils, add a level teaspoonful of salt. Then turn in slowly (stirring rapidly), the mixture of eggs and flour paste. Let it all boil together for a few minutes, stirring well nearly all the time, and turn it out for the table. F. E. R.

Peas.—Americans are great consumers of green peas, but they are far behind the Europeans in the use of ripe peas. These are imported as "split peas," the hull being removed and the peas split in halves. They are about equal to beans in their amount of nutriment, and should be more generally used, if only to give a variety, than they are by our people outside of cities. A bowl of pea-soup at mid-day is equal to a hearty dinner.

BOYS & GIRLS' COLUMNS

The Doctor's Talks.

You will recollect that I began these "Talks" about flowers and plants in May last, with the Buttercup, and since then have described several other flowers. I have tried to show you that, however unlike the Buttercup they appear, they resemble it in many points, and that they are all made upon the same general plan, but differ in details. It is this plan of the flower that I wish you to understand, and gave it in the first Talk. If you have forgotten the parts and their positions, you will do well to read the description of the Buttercup over again. When you understand the Buttercup, or any other flower thoroughly, you will know what to look for in all other flowers. It is true that some of the parts belonging to the Buttercup may not be found in all the flowers that you come across, but the parts that are present, will always be in the same position in relation to one another, that they are in that flower. You can notice in the fields, in the woods, by the road-side, and in the garden, flowers in great variety, and in outward appear-

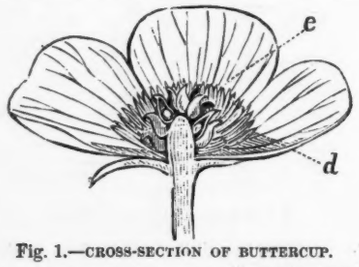


Fig. 1.—CROSS-SECTION OF BUTTERCUP.

ance very unlike. If you were to go to a distant country, to South America or Australia, you would find a great number of flowers, all very different from those at home, but the little Buttercup has given you the key to them all. It has taught you what parts to look for, and where to expect to find them. In the first Talk, I asked

What are Flowers For?

These thousands of flowers all over the world, so different in general appearance, yet really so much alike, are all engaged, so to speak, in doing the same thing. They are for an object, and that is, the continuation of the kind of plant that bears them. Some plants live for a single season, and then die; others die in the second summer, while others live on for many years, it may be, like some trees, for hundreds of years. But at some time, the longest lived die, and all sooner or later prepare for others of the same kind to take their places.

Fig. 3.

Fig. 2.

This is Done by Seeds,

and the whole object of the flower—of all flowers, in all their great variety, and often wonderful beauty, is to produce fruit, which contains the seeds. To go back once more to our Buttercup. We will, for convenience, bring this flower here again. In the very center, we have the little bodies (fig. 1. *e*,) called pistils, and just outside of these, the pollen-producing stamens, *d*. After the pollen from the stamens has fallen upon the pistils, the stamens and all the other parts of the flower fall away, leaving only the pistils. You will recollect that each pistil (fig. 2,) contains an ovule, fig. 3, and this grows and becomes a *seed*, while at the same time, the pistil itself grows larger, gets hard and dry, and ripens into a *fruit*. A fruit is not always pleasant to eat.

Fig. 4.

The Fruit is the Ripened Pistil,

and whatever is attached to it, whether juicy as in the pear, or dry as in the hickory. The Buttercup produces a little, dry, one-seeded fruit. If you examine the pistil of the pea, you will find, instead of one, several ovules, and the pistil ripens into a fruit, the pod, which is tough and dry, with several seeds, as in fig. 4, which shows one-half of it. In both of these, the Buttercup and the Pea, the pistil becomes hard and dry in fruit. Let us look at the flower of the cherry or peach, but as the season has passed, we must take the engraving in place of the flower itself; fig. 5, of the cherry, will answer also for the peach, as they are much alike. Compare the flower with that of the Buttercup. You find as in that, outside, *a*; the green calyx next the petals, *b*; within these, *c*, the stamens, and in the very center, instead of, as in the Buttercup, many pistils, there is but one, *d*. Another thing you will notice; in the cherry, the calyx, corolla, and stamens are united, have grown together as it were, for part of their length, to form a little cup. These

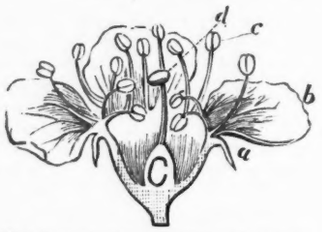


Fig. 5.—SECTION OF CHERRY FLOWER.

parts in the Buttercup are all separate and distinct. Observe that the parts are in the same order in both flowers; the solitary pistil of the cherry, like the several pistils of the Buttercup, in the very center of the flower. When the pollen of the cherry has fallen on its pistil, the rest of the flower falls away, and the pistil begins to grow. But as it grows and matures, it does not become a hard and dry pod, as does that of the Buttercup and the Pea, but a wonderful change takes place. The pistil in the first place grows enormously, and as it ripens, it becomes in part, very soft and juicy. I say in part, for the pistil itself does not all become pulpy. The Cherry, the Plum, and the Peach, you know, are called "stone-fruits," and the change that takes place to form the "stone," is quite as marked as that which produces the flesh. Let us take a section of the Peach, as that is larger; in this, fig. 6, after the flower falls, the pistil grows very rapidly. While the outer part of it is becoming soft and pulpy, the inner part is growing hard and stony; you know how hard it is if you try to make peach-stone, or cherry-stone baskets. When the Peach is ripe, in some kinds, the free-stones, the flesh and stones separate readily, while in the cling-stones, they remain attached to one another. The peach-stone is not, as is generally supposed, the seed, but is a part of the pistil. The seed is within the stone, the "peach meat," as it is often called. In the pistil of the Peach, etc., there are two ovules, side by side, but as a general thing, only one of them ripens, the other shrivels up and comes to nothing. Sometimes, however, both ovules ripen into seeds, and you have two in place of one, or "double meaters" as the boys call them. It will be too late for cherries, but you can watch these changes in the late peaches and plums, and by cutting one cross-wise occasionally, see how the originally soft pistil becomes, on its inner part, gradually harder, while its outer part grows softer as it ripens. Let us now look at another kind of fruit. If you cut down through the flower of a Strawberry, a Blackberry, or a Raspberry, as you did with the Buttercup, it will appear much as in fig. 7. Here you have, as in the Buttercup, the calyx, and corolla; then numerous stamens, and in the center a number of pistils upon a receptacle, or the rounded end of the flower stem. This, fig. 7, is the flower of the Strawberry; that of the Blackberry, more likely to be in season, is like it, except that the central part, the receptacle, is longer and narrower. After the Blackberry petals and stamens fall away, the pistils begin to ripen; they grow rapidly, and if you cut through the fruit lengthwise, before it is quite ripe, as in fig. 8, you will see that each pistil becomes a little drupe or stone-fruit, fig. 9, just like a miniature cherry or peach. The same

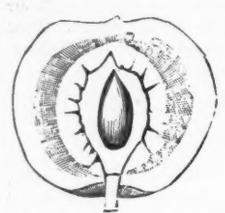


Fig. 6.—SECTION OF PEACH.

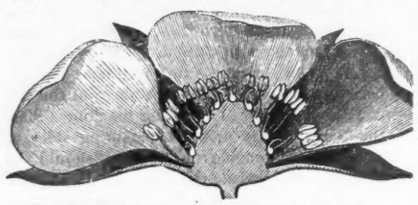


Fig. 7.—SECTION OF STRAWBERRY FLOWER.

thing takes place within the Raspberry; the flesh in the little drupes is softer and more juicy. The chief difference between the Blackberry and Raspberry is this; in the former, the drupelets, or grains, are attached to the receptacle, while in the other, they cohere slightly to one another, but when ripe, readily leave the receptacle, and in picking the fruit, we leave this on the bush, as in fig. 10. In the Strawberry a still more curious change takes place. The pistils do not increase greatly, but ripen into little, dry, one-seeded fruits, which many take to be seeds, but the proper seed is within them. As these ripen, the receptacle enlarges greatly, it becomes soft and juicy, and eatable, while the real fruit is scattered over the surface, or is sunken in little pits, or depressions, as in figure 11. In the fruits here described, we make use of very different parts; in the Pea, we eat the seeds themselves; in the Cherry, Peach, and Plum, it is a part of the ripened pistil; in the Blackberry, many ripened pistils, with the receptacle to which they are attached; in the Raspberry, it is the ripened pistils only, without the receptacle: while in the Strawberry, we eat the ripened pistils, because we can not help it, as they are on the receptacle, which is the eatable portion, and what we really value in the Strawberry, is the juicy fruit-like end of the flower-stalk. There are still other fruits to be described, but they must be left for another Talk.

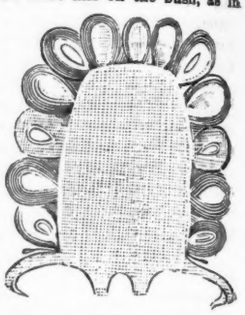


Fig. 8.—SECTION OF THE BLACKBERRY.

Fig. 9.

By examining the fruits at different times as they are growing, you can better understand their real nature, than if you wait until they are quite ripe. I would add that the Almond is own brother to the Peach, but it never becomes fleshy; after flowering, it increases a good deal in size, but instead of the outer part becoming soft and juicy, as it does in the Peach, it gradually becomes dry and breaks away from the stone or Almond shell. The eatable part of the Almond is the seed itself.

Fig. 10.—"HULL" OF RASPBERRY.

Largest Cities in the World.—When we studied geography in school, fifty years ago, the largest cities were supposed to be Pekin in China, Yeddo in Japan, and London in England, which had about one and a half million of inhabitants. Now the population

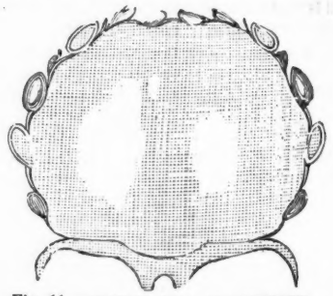
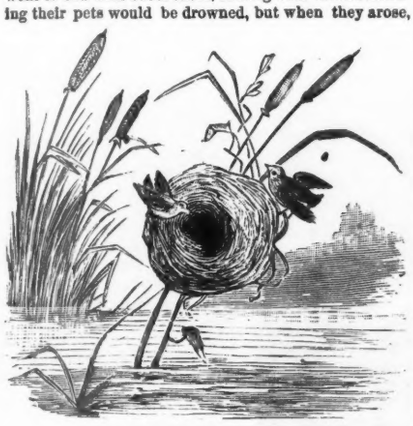


Fig. 11.—SECTION OF A STRAWBERRY.

of Pekin is very uncertain, being only "estimated," and may not be a million. Yeddo is also uncertain, (perhaps 900,000). But London has towards five millions (4,764,312), which however takes in all the surrounding, thickly settled population, included in the "London Police district," on both sides of the Thames river. Paris in the same way, on both sides of the Seine river, has 2,747,000 population, and New York in the same way had nearly two millions (1,942,000), that is taking in Brooklyn, Jersey City, Hoboken, and L. I. City, all of which are really part of New York, being only separated by narrow water channels. At the present rate of growth New York will soon be the second city of the world, and quite probably many of the boys and girls who read this will live to see it *the* largest city on the globe.—Only thirty-one years ago when we visited Chicago, it looked like a large village or small city, and had less than thirty thousand people in it. Now it has about twenty times as many (503,304 by 1880 census).

A Marsh Wren's Nest.

In the upper part of Sheep's Head Bay, many sociable little Marsh Wrens build their nests in the "Cat-tails," and last May two came so near our land, that the children, by climbing on a high fence, could look down and see them at work on their nest. They would disappear suddenly, then fly back with long pieces of sea-grass, and weave them ingeniously into shape. Work seemed to make them very happy, and they chirped their quick fright-note from early morning until long after nightfall. When we saw the nest smoothly and beautifully finished, and so thickly and firmly made, we thought it would be a snug resting place for a little brood. We soon began to wonder if the eggs had come, so one day, Uncle Will got on his "hip-boots," and waded out to the nest, and found eight tiny brown ones. The little mother bird began to sit patiently upon them, and soon wakened into life, eight specks of wrens. One dark afternoon the wind blew from the Southeast, and the rain began to fall, and the little nest rocked violently in the weeds. The parent birds fluttered in distress about the nest as you see them in the picture, for they knew their little ones' lives were in danger. The children went to bed with sober faces, fearing that before morning their pets would be drowned, but when they arose,



A MARSH WREN'S NEST.

the sun was shining, and Uncle Will brought the welcome news that the nest had withstood the storm, and the little birds were safe. We watched them carefully each day, but they soon grew too large for their nest, and flew away to think about building homes for families of their own. We did not like to have the nest destroyed, so it was carefully cut down, attached to the "cat-tails," and afterwards fastened tastefully over the cabinet in the parlor.

AUNT IDA.

Answers to Puzzles in the June Number.

THE SHIPWRECK PUZZLE.—o o o

The Voyage of the "Waterwitch."

BY AGNES CARR.

One sultry August day, beneath the shade of a grand old oak tree, and by the side of a bright, laughing, little brook, that murmured a low, sweet song, as it danced along over the pebbles towards the arms of its mother—the river, two happy children were playing merrily on its mossy green bank.

A bright-eyed girl held tightly clasped in her arms, a daintily dressed doll, while her brother, with bare feet, waded in the clear water, floating a miniature yacht, with snowy sails, and gay pennant, upon the rippling stream. "See, Effie," he cried, "how finely the Waterwitch cuts the waves! Uncle John says she is perfect in every part; and is'nt she a beauty?"—"Yes, indeed, Charlie," responded his sister with enthusiasm: "and Miss Sophy must have a sail;" saying which, she ran down the bank, and stowed the waxen doll carefully away in the boat.

For a time both were interested in loading the tiny craft with a cargo of wild flowers, and sending it on trips to the opposite bank, but at length, growing weary of this, they tied the string to a bramble-bush, and wandered away in search of other amusement. A bushy-tailed squirrel scampering through the wood attracted their attention, and off they started in pursuit, leaving the Waterwitch to the care of the wind and waves, which were softly but steadily tugging at the slender line that bound it to the shore, until a sudden gust snapped it asunder, and the boat was free.

The birds in the trees overhead, sang "good bye, good bye," the wee little wavelets lapped her sides, seeming to say, "Come away with us to the beautiful river," and with Miss Sophy as passenger, off she started, past the green banks where the children played, past the lily pads, where snowy blossoms opened their golden hearts to the sun, through whirling eddies, and dashing rapids, until at length the little bark was fairly launched upon the great broad river. A butterfly rested awhile upon her sails, and flapped his gay wings in Miss Sophy's face, people shouted from the shore, and fish came up and bumped their noses against her keel. Night closed in, and still beneath the twinkling stars, the runaway sailed on, with the pretty doll lying on her back, her blue eyes staring at the mid-night sky, while far away the boyish owner bewailed his loss, and Effie wept because her lovely Sophy had been carried off by the Waterwitch.

Just where the river empties into the ocean, on a lonely point of land, a fisherman had built his cot, and here another boy and girl, of about the same age as Charlie and Effie, led a far different life from theirs, for never had either owned a plaything not made by themselves. Molly was a womanly little creature, and her father's house-keeper, forming dolls for herself of sticks or corn-cobs, and prizing as her choicest treasures, a few old books left her by her mother, while Jack mended nets, and was happy if he could rig up an old wash-tub, in which to paddle along the shore, although it frequently turned over, and treated him to an unexpected ducking in the water. In fact, he was so fond of this style of navigation, that a quaint old light-house keeper, who dwelt in his tower on a headland near by, nick-named him "Diogenes," after the philosopher, who made his home in a tub. "Ah! if I might but have one of those wooden dolls from the town," Molly would sometimes sigh, and then Jack would straighten himself, and say, "just wait until I am old enough to go to sea with the fishermen, and you shall have a dozen." But immediately Molly would think of an older brother, drowned years before, and answer: "I do not like the ocean, it is cruel, and treacherous, but I love the river, that is sweet and fair, and will some day bring us good luck."

One summer morning, Jack was up with the dawn to dig bait for his father, for he well knew it is the "early bird that catches the worms," and had his tin can half full by the time the sun had slipped off his nightcap, and lighted up with his first rays something white, tossing about on the surface of the river. "Can it be a sea-gull, way in here!" Jack first thought as he caught sight of it, and then as it came nearer, with a suppressed shout he hurried down to the shore, launched his clumsy tub-boat, and rowed towards the middle of the stream. "It really is a baby yacht!" he exclaimed, as the Waterwitch, for she it was, floated by him, and he tried with a pole to draw her towards him, as you may see in the picture. He made several attempts before succeeding, but at last the career of the runaway was stopped, and jack gave a shout of triumph as he drew her from the water, which changed to one of surprise as he discovered the lone passenger on board, and lifted out Miss Sophy, who, though her costume was somewhat damaged by the spray, looked as placid and serene as ever. Molly, who was busy preparing breakfast, heard Jack's cheers, and came running from the cottage to see what had happened. She opened her eyes in amazement at the yacht, but when the travel-stained young lady was placed in her arms, fairly cried and laughed for joy.

JACK IN THE TUB-BOAT WITH THE WATERWITCH.—*Drawn and Engraved for the American Agriculturist.*

"It is a fairy doll," she said, "and the beautiful river has brought us luck at last." And she named her new treasure Undine, after the water maiden in one of her favorite books. The Waterwitch, too, had found a safe harbor at last, and was a source of great wonder and delight to all the rough fishermen on Lonely Point, while to Jack she was a prize indeed.

It happened that some weeks later, Charlie accompanied his father on a pleasure excursion down the river, when what was his amazement to see his long-lost yacht dancing along in the wake of a funny looking tub, from which a white flag was flying, and in which was seated a boy of about his own size. He stopped to ask an explanation, and so learned of the long voyage made by the Waterwitch. "She is mine, and no mistake," he said; "but," as he caught sight of the fisher-lad's downcast look, "never mind, Jack, I will make you a present of her, and I am sure Effie will be pleased to have your sister keep the doll, as Uncle John has consoled her with a much handsomer one."

And so she was, for shortly after Molly received a neat little trunk, containing all Miss Sophy's numerous dresses, which exactly fitted the new Undine, who frequently takes short trips in the Waterwitch, but has never attempted another voyage. It is truly wonderful how great things have small beginnings, and out of seeming trifles and petty mistakes, even, events of vast importance frequently grow.

Boys' and Girls' Collections.—We heard a person, not long ago, ridiculing a boy for collecting postage stamps. If, in collecting stamps, one does it only to see how many he can get, very little benefit comes from it. If the collecting of stamps of little known countries leads to the reading about those places, their forms of government, etc., then something useful may come of it. But why should boys and girls who live in the country collect postage stamps when they can do so much better? Let them collect specimens of all the woods that grow upon the farm, not only of trees, but of shrubs. How many know the acorns of the various oaks, or the nuts of the several hickories. One of the most curious collections we ever saw was made by a young girl of all the beans she could get. We do not recollect how many there were, but the number and variety were astonishing. Such a collection is curious, but it has very little use. Much better would it be to make a collection of the seeds of all the weeds you can find. If these were put in separate packages and properly labelled, they would be useful for reference. When a lot of clover seed, or other seed is bought, it can be examined for foul seeds, and if you have a collection of weed seeds at hand, you can ascertain the kind mixed with that to be sown.

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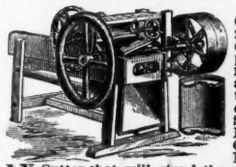

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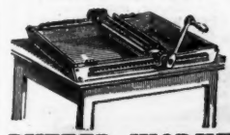

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Which uses **GROUND LIMESTONE** in making the Soil. Every Farmer can prepare his own **Fertilizer** with an ordinary Horse-power by using

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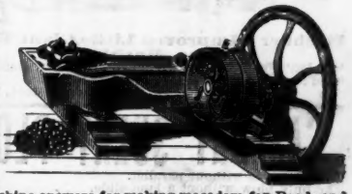
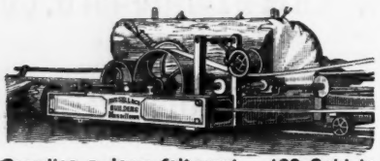
This machine takes a lump of limestone or any other mineral 3 to 5 inches square, and crushes it and pulverizes it at one motion to any required fineness **without the use of burr stones or rollers.** Farmers drill it or sow it just as it comes from the machine. After six years' trial, ground **Raw Limestone** has been found to be worth three times as much as **Burnt Lime,** and with this machine it does not cost one-half as much to make. While Phosphate, Bone Dust and other Fertilizers must be renewed every one or two years, by actual trial **Ground Raw Limestone** will last four years. By burning LIME you destroy 40 per cent of carbonic acid, which is **PLANT FOOD.** An analysis of the Virgin Soil Blue Grass Region, Kentucky, shows 2,464 carbonate of lime, 0,319 phosphoric acid, or in other words, Nature uses EIGHT TIMES as much GROUND RAW LIMESTONE as Phosphates or Bone Dust in making good lands. Any farm hand can run the machine. It is remarkably **SIMPLE** and **DURABLE,** and is ready to attach to any kind of power as we ship it. The same machine answers for making macadam for Roads and Ballast for Railroads, by simply changing Dies. ONE, THREE and FIVE-HORSE-POWER. Price **$190, $300,** and **$570.** Address,



TOTTEN & CO., Pittsburgh, Pa. Only Makers.

THE MASSILLON PONY MILL
STRICTLY PORTABLE.



Supplies a long felt want. 100 Sold in Ninety Days.

Every owner of a Farm Engine located in moderately timbered country can find profitable employment the year round by purchasing one of these Mills.

Every owner of a timbered lot is interested in having one of these Mills in his neighborhood. No more hauling logs to mill. All the waste saved.

Write for Circulars and Price Lists, and address of nearest Agent. [Name this Paper.]

RUSSELL & CO., Massillon, O.

Hege's Improved Circular Saw Mills.

Send for CIRCULARS.

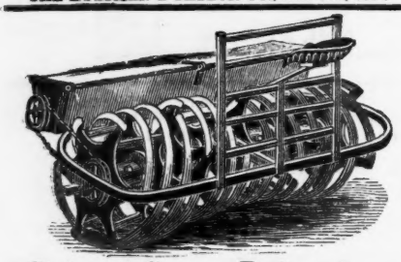
With universal Log Beam, Rectilinear, simultaneous Set works, and Double Eccentric Friction Feed.

Unexcelled for Accuracy & Durability.

Prices low. Workmanship first-class.

Manufactured by **Salem Iron Works, Salem, N. C.**

SAW MILLS
The Best is Cheapest For Descriptive Circular & Prices write THE AULTMAN & TAYLOR CO., Mansfield, Ohio.



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Puts in Crops at Half the Cost of the Plow.

Over 100,000 Acres have been put into Crops by these Machines.

PAMPHLETS FREE--CUTS & LETTERS.

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Maywood, Ill.

THE UNION HORSE-POWER
WITH LEVEL TREAD

Largest track (7 in.) wheels. No Rods and Chilled Bearings Guaranteed to produce more power with less elevation than any other.

Also manufacturers of the Premium Farm Grist Mill, CLIMAX FEED CUTTERS. Threshers, Cleaners, &c.

Send for Descriptive Catalogue.

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An enterprising man, with a Butterworth Thresher, can, in six months, accumulate more grain and make more money than he possibly could by twelve months' hard work on a good farm. For circulars, address

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Level Tread Horse Power
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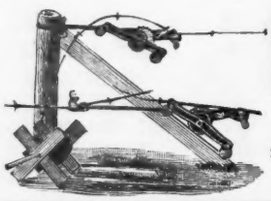
Heebner's Improved Little Giant Threshing Machine.

"Union" Feed Cutter, Circular and Drag Saw Machine, etc., Send for Catalogue. **Heebner & Sons,** Lansdale, Mont. Co., Pa.

CASADAY SULKY PLOW.

Its success is without parallel.
The only plow without a land slide.
Entire weight carried on wheels.
No side draft. Without an equal.

OLIVER CHILLED PLOW WORKS,
South Bend, Ind.



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FARMERS LOOK TO YOUR INTERESTS.

The **"Samson"** is the best, the simplest and most portable **Wire Stretcher** in the market. It does the work every time. Every machine guaranteed. Ask your hardware dealer for it. Send for circulars. Manufactured only by

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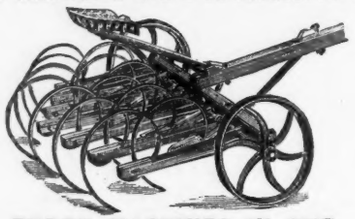
LA DOW'S INDEPENDENT
SPRING TOOTH HARROW



THREE MACHINES IN ONE,
and
EACH the BEST of its KIND.

Oil Tempered Spring Steel Teeth, every Tooth independent. The Teeth can be set so they will not turn over sods. Attractive in design, durable in all its parts, thorough in its work, easy in its operation and adjustments, and sold at a price within the means of ALL. Send for Circular and Price List. Manufactured by

WHEELER & MELICK CO.,
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Also Manufacturers of La Dow's Jointed Pulverizing Smoothing Disk Harrow.

CENTENIAL AND GRAND PARIS WORLDS FAIR PRIZES AND ALL THE U.S. STATE FAIR PREMIUMS IN 1877 & 1878.
PRICE, $350.
PUTS FROM 10 TO 12 TONS IN A CAR.
REQUIRES LESS HELP.
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AND BALES TWICE AS FAST AS ANY OTHER PRESS.
THE BALE IS PATENTED AND WILL SELL FOR MORE MONEY.
ADDRESS, FOR CIRCULAR,
P. K. DEDERICK, & CO. ALBANY, N.Y.

THE IRON TURBINE
WIND ENGINE.

STRONG. DURABLE. **Best in the WORLD.**

THOUSANDS NOW in USE.

BUCKEYE Force PUMP
NEVER FREEZES in WINTER.
MANUFACTURED BY
MAST, FOOS & CO.,
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Send for Price-List and Circulars.

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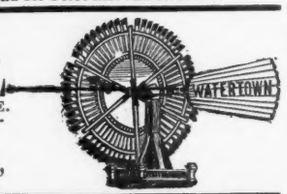

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THE PERKINS'
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is the Strongest and Best Self-Regulating Wind Mill made. Full instructions for erecting sent with the first mill. **All Wind Mills warranted.** For Circulars and Prices address

The Perkins' Wind Mill & Ax Co.,
Agents wanted. **Mishawaka, Ind.**

THE CHAMPION
WIND MILL POWER
The Best in the World.

It is perfectly self-regulating, and presents no unnecessary surface to the wind. Pronounced by millwrights and mechanics to be superior to all other mills made. Do not buy until you have investigated the Champion. All information regarding the mill free.

POWELL & DOUGLAS, Waukegan, Ill.

STAR CANE MILL

GRINDS twice as fast. Double the capacity. CHEAPEST mill made. WARRANTED in every respect. We manufacture ten different styles of Cane Mills and a full stock of Sugar Makers' Supplies, and

STUBBS'
EVAPORATOR.

Has greater capacity. Saves half the labor. A boy can operate it. Saves fuel. Syrup made on it brings a higher price in market. Don't fail to investigate its merits before ordering. Send for circular to

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EIGHTH AND HOWARD STS.,
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Queen OF THE South
PORTABLE
FARM MILLS

For Stock Feed or Meal for Family use.

10,000 IN USE.

Write for Pamphlet.

Simpson & Gault M'f'g Co.
Successors to STRAUB MILL CO.
CINCINNATI, O.

Farm Grist Mills
AND CORN SHELLERS.

OVER 25,000 NOW IN USE.

Every Machine is fully Warranted. Price of Mills, $15 to $40. Sheller, $5. Don't buy a **Mill** or **Sheller** until you have seen our terms and Illustrated Circular. Address

LIVINGSTON & CO., Iron Founders, Pittsburgh, Pa.

GRIND YOUR OWN BONE
Meal and Oyster Shells

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THE CELEBRATED
A. P. DICKEY FANNING MILLS.

Have no equal. They obtained the highest award at the 'Centennial' in 1876, and at Paris in 1878. These mills are made in nine sizes, for Farm and Ware-house use (hand or power). Capacity from 50 to 500 bushels per hour. They clean and separate all kinds of Grain and Seed for market; also **grade** them for **seeding.** They separate Oats and foul seed, such as Cockle, Smut, &c., from Wheat, Barley or Rye; and are specially adapted for cleaning, separating and grading Timothy, Clover, Red-Top, Flax, etc., and clean and **separate** three kinds of Beans at **one operation.** We also make the

"Peerless Corn Sheller." Cast Iron Field Rollers, &c.
Address, **DICKEY & PEASE,** Manufacturers.
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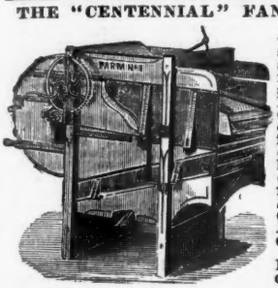
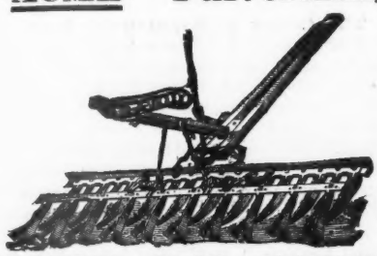
THE "CENTENNIAL" FANNING MILL.



THE BEST MILL IN THE WORLD. It separates Oats, Cockle, and all foul stuff from Wheat. Is also a perfect cleaner of Flax, Timothy, Clover, and all kinds of seeds. The great improvement over other mills is that it has two shoes. It is especially adapted for warehouse use. *Send for Descriptive Circular and Price-List.* Liberal discount to dealers.

Address, S. FREEMAN & SON, Racine, Wis.

"ACME" Pulverizing



HARROW, CLOD CRUSHER AND LEVELER.

The "**ACME**" subjects the soil to the action of a **Crusher** and **Leveler**, and at the same time to the **Cutting, Lifting, Turning** process of double rows of **Steel Coulters**, the peculiar shape and arrangement of which gives **immense cutting power.** The **entire absence of Spikes or Spring Teeth** avoids pulling up and scattering of rubbish. It is **especially adapted** to inverted sod, hard clay and "slough land," where other Harrows utterly fail, and also works perfectly on light soil.

Sent on trial to responsible farmers anywhere in the United States. Agents wanted. Send for circular.

NASH & BROTHER, Sole Manufacturers,
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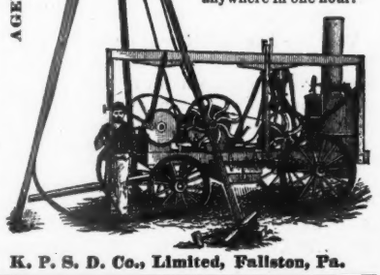
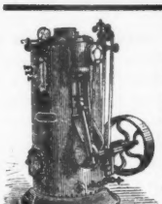
Send for Circulars and Price-List. **AGENTS WANTED.**

THE "KEYSTONE."

The Best Portable Steam Driller in the world for drilling Artesian and Ordinary Water Wells. Test Wells for Minerals, Air Holes for Mines, Oil Wells and Pipe-driving can be set up anywhere in one hour.



K. P. S. D. Co., Limited, Fallston, Pa.



Bookwalter Engine.

Especially adapted for Dairies, Creameries, and Farm purposes. Can be used for years without any repairs. Over 2,200 in actual use. Not one ever exploded. Can be run by any one of ordinary intelligence. Every Engine complete, ready to use as soon as received. No Engine built so good and so low in price.

3	**Horse-Power....**		**$240.00**
4½	"	"	280.00
6½	"	"	355.00
8½	"	"	440.00

Illustrated Catalogues Free.

JAMES LEFFEL & CO.,
110 Liberty St., New York City, or **Springfield, Ohio.**

ITHACA
Portable Engine.

STRONG, DURABLE, ECONOMICAL, SAFE.

Write for prices, addressing the Manufacturers,
WILLIAMS BROTHERS, Ithaca, N. Y.

KRIEBEL'S Vibrating-Valve

STEAM ENGINES.

One-third less Machinery than others. Best Engine for farm and dairy purposes. Address,

West Point Engine and Machine Co.,
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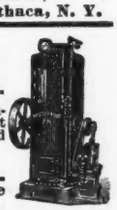
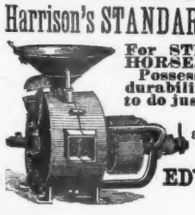


Harrison's STANDARD GRINDING MILLS!



For STEAM, WATER, WIND, HORSE, or HAND POWER.
Possessing great capacity and durability. Every Mill warranted to do just what we claim for it.

Send for new Illustrated Catalogue. Address

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New Haven, Conn.

A RARE OFFER

$1 Worth of First-Class SHEET MUSIC FREE

Buy fifteen bars of **Dobbins' Electric Soap** of any grocer; cut from *each* wrapper the picture of Mrs. Fogy and Mrs. Enterprise, and mail to us, with full name and address, and we will send you **free of all expense,** your own selection from the following list of Sheet Music, to the value of **One Dollar.** We absolutely **GUARANTEE** that the music is unabridged, and sold by first-class music houses at the following prices:

INSTRUMENTAL.		Price
Artist's Life Waltzes, (Kunster Leben,)	*op 316, Strauss*	75
Ever or Never Waltzes, (Toujours ou Jamais,)	*Waldteufel*	75
Chasse Infernale, Grand Galop, Brilliant,	*op. 23, Kolling*	75
Turkish Patrol Reveille,	*Krug*	35
Pirates of Pennance, (Lanciers,)	*D'Albert*	50
Sirens Waltzes,	*Waldteufel*	75
Fatinitza, Potpourri,	*Suppe*	1 00
Mascotte, Potpourri,	*Audran*	1 00
Trovatore, Potpourri,	*Verdi*	75
Night on the Water, Idyl,	*op. 93, Wilson*	60
Rustling Leaves,	*op. 68, Lange*	60

VOCAL.		
Patience, (The Magnet and the Churn),	*Sullivan*	35
Olivette, (Torpedo and the Whale,)	*Audran*	40
When I am Near Thee, (English and German words),	*Abt*	40
Who's at my Window,	*Osborne*	35
Lost Chord,	*Sullivan*	40
My Dearest Heart,	*Sullivan*	35
Life's Best Hopes,	*Meininger*	40
Requited Love, (4 part Song,)	*Archer*	35
Sleep while the Soft Evening Breezes, (4 part Song,)	*Bishop*	35
In the Gloaming,	*Harrison*	30
Only be True,	*Vickers*	35
Under the Eaves,	*Winner*	35
Free Lunch Cadets,	*Sousa*	35

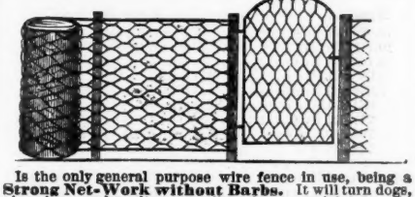
If the music selected amounts to just $1, send only the 15 pictures, your name and address. If in excess of $1, postage stamps may be enclosed for such excess.

We make this liberal offer because we desire to give a present sufficiently large to induce *every one* to give Dobbins' Electric Soap a trial long enough to know just how good it is. If, after trial, they continue to use the soap for years, we shall be repaid. If they only use the fifteen bars, getting the dollar's worth of music gratis, we shall lose money. This shows our confidence. The Soap can be bought of all grocers—the music can only be got of us. See that our name is on each wrapper. **Name this paper.**

A box of this Soap contains sixty bars. Any lady buying a box, and sending us sixty cuts of Mrs. Fogy, can select music to the amount of **$4.50.** This Soap improves with age, and you are not asked to buy a useless article, but one you use every week.

I. L. CRAGIN & CO. 116 S. Fourth St. Philadelphia.

Sedgwick Steel Wire Fence.



Is the only general purpose wire fence in use, being a **Strong Net-Work without Barbs.** It will turn dogs, pigs, sheep, and poultry, as well as the most vicious stock, without injury to either fence or stock. It is just the fence for farms, gardens, stock ranges and railroads, and very neat for lawns, parks, school lots and cemeteries. Covered with rust-proof paint (or galvanized) it will last a lifetime. It is **Superior to Boards or Barbed Wire** in every respect. We ask for it a fair trial, knowing it will wear itself into favor. The **Sedgwick Gates,** made of wrought-iron pipe and steel wire, **defy all competition** in neatness, strength and durability. We also make the best and cheapest **All Iron Automatic or Self-Opening Gate.** Also cheapest and neatest **All Iron and Steel Wire Ornamental Fence.** For Prices and Particulars ask Hardware Dealers or address the Manufacturers,

SEDGWICK BROS.,
Mention this paper. **Richmond, Ind.**

COMMON SENSE ENGINES.

Simple, durable, of the best workmanship and material. Solid Wrought Iron Boilers. Engine complete on board cars at Springfield, Ohio, at following prices:

3	Horse Power.....		$275
5	"	"	300
7	"	"	375
10	"	"	500

15, 20 and 25 H. P. at very low prices.

These Engines fully guaranteed in every respect. Address COMMON SENSE ENGINE Co., Springfield, Ohio.

WELL BORING, ARTESIAN WELL DRILLING & MINERAL PROSPECTING MACHINERY

and how to use, is fully illustrated, explained and highly recommended in "**American Agriculturist,**" Nov. No., 1879, page 465. Send for it. Portable, low priced, worked by man, horse or steam power. Needed by farmers in every county. Good business for Winter or Summer and very profitable. Makes wells in earth or rock anywhere. We want the names of men that need wells. Send stamp for illustrated price list and terms to Agents.

Pierce Well Excavator Co., 29 Rose Street, New York, U. S. A.

Sent FREE!

TREATISE ON EVAPORATING FRUIT
Profits and General Statistics.
American Mf'g Co., Waynesboro, Pa

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.

Back numbers of the "American Agriculturist," containing desired articles, or those referred to in the "Basket" or elsewhere, can usually be sent post-paid for 15 cts. each, or $1.50 per volume.

Clubs can at any time be *increased* by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 5 subscribers and $6, may afterwards send 5 names more and $4, making 10 subscribers for $10.00; and so for any of the other club rates.

Read the Advertising Columns.—Letters are daily received by the Editors, asking where pigs, fowls, seeds, fertilizers, machinery, etc., can be procured. We consider all the information of this kind that is given in the advertising pages sufficient, if those needing anything will only look there; we can not find room to repeat what is already plainly told elsewhere. Every page of the *American Agriculturist*, including the covers, is interesting reading, and should all be carefully examined every month. In addition to looking after what one may want, the reading of what others have to say, in offering their wares, etc., starts up some new idea in the mind of the reader.—When writing to any advertiser, always tell him in what paper his advertisement was seen.

Milk and Butter in Florida.—"W. L. H." writes us from Ocala that there is no wonder that the native cows are unproductive, as they are never fed, and are milked but once a day, and that at no regular hour. He has no doubt that good cows, properly cared for, will give good returns.

Shore Days.—In parts of New England the old custom of passing a day at the shore is still observed. It is in reality a neighborhood pic-nic, the party being made up of several families living within reach of salt water. The day, usually one of the present month, is fixed upon long beforehand, and great preparations are made for it. On the day an early start is made, and at length the long caravan reaches salt water. We have been with some of these shore parties, and think we never saw happier people. Bathing, fishing, and above all the digging of clams occupy the party, and such times in cooking and in eating "shore fare"! Of course only a small share of our readers can reach the sea-coast, but quite as much enjoyment can be had elsewhere. Make a holiday; go somewhere, and do something (if only by doing nothing), outside of the daily routine, and each one will return home, if a little tired, all the better for such a holiday. We believe in farmers' frolics, provided the whole family take part in them.

Sulphur and Ants.—Jas. Dunlop, of Dakota Territory, writes us, that when living in Ceylon, he was engaged on some experiments with Sulphur on the diseased Coffee plants. On coming across a large ants' nest, he stirred up the inmates and dusted them liberally with the Sulphur, merely as a matter of curiosity. On passing the place a few days after, he could find no ants at the nest, nor could he find one near. He thinks the experiment worth trying with ants in the Lawn. Should we be troubled with ants in the Lawn, we would try Bisulphide of Carbon, which is found by careful and thorough experiments to be a powerful insecticide.

A Use for Pussley.—"A Farmer's Daughter," writes us from Newburyport Mass., that she has been much interested in what we said in July last, about "Pussley," or Purslane. She says that, having a large quantity of the plant, she concluded to try it as a food for cows. The weed was pulled, and half a bushel was given to each cow every night after milking. It was eaten readily, the cows seeming to be very fond of it, and a large increase in the flow of milk was the result. The experience of the first year was so beneficial, that its use has been continued with good effect. When we know more about "Pussley," it will not be regarded as altogether bad.

Interesting Census Items.

In addition to the numerous items relating specially to Agriculture given on pages 328, 329, and 330, we have prepared in epitomized form the following, which are interesting and serve for reference:

How Much is "Uncle Sam" Worth?—We talk very glibly about Millions, and Millionaires, but how few can really think of and comprehend a million—a Million Dollars for example. We can easily grasp a gold or silver or greenback dollar, and carry in mind five, fifty, a hundred, five hundred of them, and by a little effort work up a conception of five to ten hundred, or even ten thousand. But a hundred times $10,000, that is a million, is more than any one can really grasp in a whole hour's earnest thought.—Lay one-dollar greenbacks out in a line, and one million of these would stretch away 115 miles.—Well, it takes a thousand millions to make one *Billion*; and so a single billion of bills would extend 115,000 miles, or four and three-fifths times around the world!—But the Census reports the *assessed* value of the real and personal property in the United States, two years ago, at nearly *Seventeen Billion* Dollars ($16,902,755,893). And every one knows that the assessed value is less than half the actual value. Calling it half, we have for Uncle Sam's property, real and personal, in 1880, about Thirty-five Billion Dollars! Here are the official figures:

	1880.	1870.	1860.
Assessed Value..	$16,902,755,893	$14,178,986,732	$12,084,560,005
Calculated Value.	33,805,511,796	28,357,973,464	24,169,120,010

The valuation in 1870 was upon an inflated currency of paper money. In 1860 and 1880 it was on a gold basis. Comparing 1860 and 1880, we have in 20 years gained nearly 10 billions ($9,636,391,781), which is nearly 500 millions ($481,819,589) a year; or in round numbers, $1,320,000 for every day, Sundays included; or $55,000 for each hour, day and night; or $916⅔ for every minute. This is the average for every minute, day, night, and Sundays, during 20 years past; and the property of our country is now probably increasing at the rate of $1,200 a minute, or $20 a second!

What People are Doing.—Hon. Jno. W. Shackelford, of N. C., in a recent speech in Congress, gave the following items from gleanings at the Census Bureau, etc.: Total *working force* of the country estimated at 15,000,000, divided thus: Engaged in Agriculture, 7,050,000 (47 per cent.); in Professional and Personal Service, 3,300,000 (22 per cent); in Manufacturing, Mining and Mechanical Work, 3,300,000 (22 per cent); in Trade and Transportation, 1,350,000 (9 per cent).

How Much Tobacco Do We Grow?—The last Census figures report 473,107,573 lbs., or nearly 9½ lbs. for every inhabitant, young and old. But it is not all consumed here, for a large amount is exported. Probably most people would name Virginia as the largest grower of Tobacco, but Kentucky much more than doubles her, as follows:

States.	*Lbs.*[1]	*Acres.*	*Lbs. per Acre*	*States.*	*Lbs.*	*Acres*	*Lbs. per Acre*
Ky...	171,121,134	226,127	756	Mo ..	11,994,077	15,500	773
Va...	80,099,838	139,423	573	Wis .	10,878,463	8,811	1,234
Penn	36,957,772	27,567	1,340	Ind..	8,872,842	11,955	742
Ohio.	34,725,405	34,679	1,001	N. Y.	6,553,351	4,938	1,327
Tenn	29,365,052	41,532	707	Mass.	5,369,436	3,358	1,599
N. C.	26,986,448	57,215	471	Ill....	3,936,700	5,625	699
Md..	26,082,147	38,174	683	W.V.	2,296,146	4,071	564
Conn	14,044,652	8,666	1,620				

Total, 469,283,463 lbs.; 627,641 Acres; Average, 748 lbs.

Kentucky grows over one-third (36 per cent) of the entire Tobacco crop of the country, and the above 15 States supply 99 lbs. out of every 100 lbs. grown; 22 other States and Territories report a small amount,—together only one per cent. The yield varies all the way from 471 lbs. per acre in North Carolina, to 1,620 lbs. per acre in Connecticut, in which State fertilizers are largely used.

California Wheat versus Gold and Silver.—In Mr. Shackelford's speech we find it stated that during ten years, 1871–1880 (inclusive), California yielded of gold and silver $186,506,249; and in the same time 278,908,000 bushels of wheat, valued at $318,231,046, or almost double that of gold.

What Cold and Heat Do People Have?—Both long-continued great heat or severe cold affect the health and vigor of people. The most active, enterprising, vigorous people, are found where a pretty uniform, medium low temperature is maintained. The mean annual temperature is the average hight of Fahrenheit's thermometer throughout the year, and during a long series of years, taking into account all hours of day and night, and all seasons of the year. The mean annual temperature of the whole country (excluding Alaska,) is about **53°** Fahr. The following table shows what mean temperature our fifty millions of people enjoy or suffer:

Inhabitants.	*Mean Heat.*	*Per Cent.*	*Inhabitants.*	*Mean Heat.*	*Per Cent.*
15,795,961	50° to 55°	31	3,292,756	65° to 70°	7
15,022,538	45° to 50°	30	421,992	70° to 75°	1
6,649,672	55° to 60°	13	273,581	below 40°	1
5,188,039	60° to 65°	10	11,061	above 75°	.01
3,497,366	40° to 45°	7			

Ninety-eight out of every one hundred live where the mean is between 40° and 70°.—The entire Cotton region has a mean above 55°, and none below 35° mean; the Sugar and Rice regions above 70°, and none below 50° mean; and most of the Tobacco region between 50° and 60°. The Prairie regions of the Mississippi Valley is mostly below 55°; and the great Wheat region of Minnesota and Dakota below 40° mean annual temperature, with a mid-winter temperature below 10°. The hottest region is Southern Florida, next to which is Southern Texas and Southwestern Arizona.

COLD WINTER.—MEAN TEMPERATURE OF JANUARY.

People.	*Per Cent.*	*Mean.*	*People.*	*Per Cent.*	*Mean.*
10,293,382 or	20	20° to 25°	1,822,495 or	4	50° to 55°
10,145,933 or	20	30° to 35°	1,759,721 or	4	10° to 15°
9,154,459 or	18	25° to 30°	455,775 or	1	55° to 60°
5,611,406 or	11	35° to 40°	266,041 or	½	5° to 10°
3,586,537 or	7	40° to 45°	50,078	—	below 5°
3,494,352 or	7	45° to 50°	24,930	—	60° to 65°
3,482,366 or	7	15° to 20°	5,491	—	above 65°

How High Up the People Live.—Among the curiosities of the Census is, "The hight above the sea level that the masses of people live?"

Number.	*Above Sea Level.*	
19,025,617 live over.....	500 and under	1,000 feet.
10,775,250 live over.....	100 and under	500 feet.
9,152,003 live over.....	level and under	100 feet.
7,903,811 live over.....	1,000 and under	1,500 feet.
1,876,885 live over.....	1,500 and under	2,000 feet.
664,851 live over.....	2,000 and under	3,000 feet.
271,321 live over.....	5,000 and under	6,000 feet.
166,545 live over.....	4,000 and under	5,000 feet.
128,348 live over.....	3,000 and under	4,000 feet.
94,989 live over.....	6,000 and under	7,000 feet.
26,846 live over.....	9,000 and under	10,000 feet.
26,400 live over.	10,000 and up to	highest point.
24,947 live over.....	8,000 and under	9,000 feet.
15,053 live over.....	7,000 and under	8,000 feet.

Pretty cold for the 53,246 people living above 9,000 feet high, and especially for the 26,400 living above 10,000 feet high!—As 5,280 feet equal a mile, there are 459,556 people living about a mile high and upward.—The *average* hight above the sea level that *all* the inhabitants live is 700 feet.

How Much Rain do People Get in a Year?—The average annual Rainfall of the United States (excluding Alaska,) is 29 inches.—Every inch of rainfall upon an acre equals 27,154 gallons, or 862 barrels; and the average fall, of 29 inches, is about 25,000 barrels (of 31½ gallons) to the acre.

People.	*Rainfall.*	*Population to Square Mile.*
12,754,479 have	45 to 50 inches	57.7
11,357,292 have.	40 to 45 inches	40.1
10,057,170 have...	35 to 40 inches	38.6
4,993,336 have	30 to 35 inches	23.
4,311,502 have	50 to 55 inches	22.1
2,813,866 have	55 to 60 inches	19.7
1,179,136 have	25 to 30 inches	8.7
855,680 have	over 60 inches	12.4
829,340 have	20 to 25 inches	3.8
537,323 have...	15 to 20 inches	1.3
309,438 have	10 to 15 inches	0.4
154,304 have	under 10 inches	0.3

It will be noted that over 46,000,000 people, or over nine-tenths of all (92 per cent), have more than the average fall of rain. In the region having 45 to 50 inches of rainfall, the population averages 57½ people to the square mile, and 40 to the square mile where the fall is 40 to 45 inches. But few, (less than 1½ to the square mile), live where less than an average of 20 inches of rain falls annually.

The Center of Population.—Place for a "Convention."—If all the inhabitants of the United States were called together at a point, to reach which would require the least aggregate amount of travel, they would go to Kentucky, on its northern border, one mile south of the Ohio River, 8 miles west of and 2 miles south of the center of the City of Cincinnati. The point is 1½ miles southeast of the village of Taylorsville, Ky. This is according to Census of 1880, but so many people have settled in the Northwest, the central point to-day is 15 to 20 miles further west, and a little further north, perhaps in the Ohio River as it bends northwest from Taylorsville.—The meaning of this Center of Population is, that if all the 50,155,783 people were standing on a platform covering the country, and all were of equal weight, that platform would just balance if it rested on a supporting point at the place indicated, which is latitude 39° 04′ 8″, and longitude 84° 39′ 40″.—The rapidity with which "Westward the Star of Empire takes its way," is shown by the fact that

THE CENTER OF POPULATION WAS:

	Moved West in ten Years.
In 1790—23 miles East of Baltimore.	
In 1800—18 miles West of Baltimore	41 miles.
In 1810—40 miles West by N. of Washington	36 miles.
In 1820—16 miles North of Woodstock, Va	50 miles.
In 1830—19 miles Southwest of Moorefield	39 miles.
In 1840—16 miles South of Clarksburg	55 miles.
In 1850—23 miles Southeast of Parkersburg	55 miles.
In 1860—20 miles South of Chillicothe, Ohio	81 miles.
In 1870—48 miles Easterly from Cincinnati	42 miles.
In 1880— 8 miles Westerly from Cincinnati	58 miles.

Average yearly movement, 5 and 7-9ths miles.

This line has kept very close to the parallel of latitude 39°, the greatest variation from this line being about 16 miles north in 1800, and about 2 miles south in 1830. At the present ratio of settlement, West, Northwest, and Southwest, this center will be well on towards the Mississippi in 1890.

Men Old Enough to Vote.—(The Country's "Working and Fighting Force.") In February *American Agriculturist* we gave the entire population (50,155,783), the males (25,518,820), the females, and other items from the Census of 1880, both for the whole country and by States. The details just made up show there were **12,830,349** men **21** years old and upward. This makes the grown men just about one-half of all the males (50¼ per cent), and one-quarter (25.57 per cent) of the whole population. But all these are not qualified to "vote," except by age, as the number includes 8,270,513 native 'whites"; 3,072,487 foreign born whites; and 1,487,344 "colored" men, Indians, Chinese, and Japanese.

STATES WITH OVER 250,000 GROWN MEN.

N. York.	1,408,751	Michigan..	467,687	California.	329,892
Penn.....	1,094,284	Iowa,.....	416,658	Georgia....	321,438
Ohio. ..	826,577	Texas.....	380,376	N. Jersey..	320,635
Illinois...	796,847	Ky.....	376,221	N. Car.....	294,750
Missouri.	541,207	Wis	340,482	Kansas....	265,714
Mass	502,648	Va.....	334,505	Alabama ..	259,884
Indiana..	498,437	Tenn. ..	330,305		

Total in 20 *States*, (nearly 80 per cent)..... 10,086,798

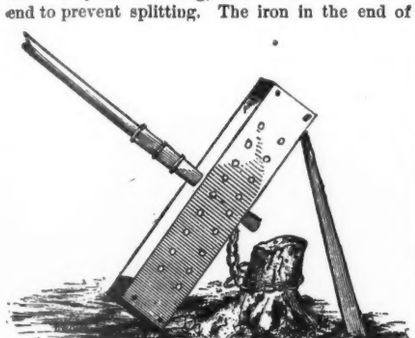
The curious will note that three States, New York, Pennsylvania, and Ohio, have over a quarter (26 per cent) of all the full-grown men in the country; that the first nine have over half (52 per cent); and the first fifteen have about 70 per cent.

6,211 Plow Patents.—The amount of attention devoted to improving the Plow, including Cultivators which are in one respect Plows, as they do similar work, is shown by the fact that 6,211 Patents have been issued for invention or improvement of this main farm implement, prior to this year. They are divided into 33 subclasses thus: Attachments, 38; Beams, 35; Cleaners, 63; Clevises, 162; Corn Coverers, 21; Coulters, 120; Couplings, 54; Cotton Choppers, 173; Cotton Scrapers, 47; Cultivators, 752; Parallel Cultivators, 82; Rotary Cultivators, 163; Straddle-row Cultivators, 114; Wheel Cultivators, 1,019; Teeth Cultivators, 171; Fenders, 95; Handles, 19; Landsides, 21; Mold-boards, 76; Plows, 686; Ditching Plows, 122; Hand Plows, 121; Mole Plows, 105; Shovel Plows, 307; Sidehill Plows, 146; Steam Plows, 159; Wheel Plows, 1,005; Points, 82; Revolving Moldboards, 44; Ridgers, 21; Standards, 27; Subsoilers, 123; Weed-turners, 38—a total of over **six thousand!**

A Stump Puller.

Mr. Irving Tyler, Tompkins County, N. Y., writes us: "I am a farmer's son, and therefore interested in the *American Agriculturist*. I send a model and description of an implement for pulling stumps, roots, and for lifting heavy logs or other heavy weights. It is called the "Samson Lever," and is constructed as follows:

The side pieces are of tough oak or elm, 1½ inch thick, 7 inches wide, and 7 feet long. Draw two lines, 3 inches apart, lengthwise of the planks, and fasten the two together, that both may be bored alike with a 1½-inch auger, beginning about 8 inches from the foot, and boring so that the holes will be 3 inches from center to center, until one row is bored. Bore the other row in the like manner, with the first hole exactly midway between the first and second holes on the other side. Two blocks, 3 inches thick, 7 inches long, and 4 inches wide, are placed between the two side-pieces at the ends, and bolted with ½-inch bolts. The blocks should be let in the side-pieces ½ of an inch, to prevent the blocks from splitting. Bore a large hole in the top block to admit the brace prop. There should be two iron pins of inch iron, 8 inches long, to go through the side-pieces and support the lever. The lever should be 6 feet long, the wood part 5 feet long, with 3 iron bands on the end to prevent splitting. The iron in the end of



A "SAMSON LEVER" OR STUMP PULLER.

the lever is 20 inches long, ½ of an inch thick, and 2 inches wide, with two notches in the lower side to fit over the pins, and a hole punched midway between these notches to receive a hook. Drive this iron in the end of the wooden lever 8 inches, and then your "Samson" is finished. The working of this implement will be plainly seen by the model and the drawing which I enclose."

Notes on Foods.

In selecting our supplies of food, it is very proper to consider which will give us the most nutriment for the money. The lumbermen who go into the forest, where they will have hard work during a long and severe winter, do not consult the books that show the composition of food. Experience has shown them that, as a main reliance, as a food that, in their rough language, will "stick to the ribs," which is another way of expressing flesh formers, there is nothing equal to

PORK AND BEANS.—No chemical analysis could lead to a better combination. In the beans the flesh formers are in large proportion to the heat producers, and as an abundance of both are needed, the fat of pork is added as a heat producer. We have not the data from which to make an accurate estimate, but have no doubt that for those who take active exercise in any occupation, the wastes of the body may be more economically supplied by this generally palatable food than by any other. Those who have not eaten pork and beans in a lumber camp, can have no idea of this food in its most perfect condition. The beans are first boiled, then placed in an iron pot which is covered. A hole is made in the ground, and a fire built there; when this fire has burned to coals, the pot is set in, and the whole, pot and coals, covered with earth. This is done in the evening, and the pot is uncovered and taken out at breakfast time the next morning. No wonder that the lumbermen are the sturdy fellows that they are!

PEA-SOUP.—A pound of peas will make a gallon of soup. The peas should be washed and soaked in cold water over night, then be cooked in five pints of water, with gentle simmering. A pound of beef or a ham-bone may be boiled with the peas; for seasoning, add an onion with a few cloves stuck in it, salt to taste, and about forty whole grains of pepper. An ounce or two of sugar will add greatly to the richness of this, as it does to almost all soups. At the end of three hours' simmering, pass the soup through a wire sieve or colander, with the aid of a potato-masher. Fry brown some squares of stale bread in lard or drippings, and add just before serving, or serve these *croutons*, as they are called, separately, to be added at pleasure. Bean-soup may be made in a similar manner.

Inconsistencies in Laws for the Supression of Contagious Diseases in Cattle.

BY PROF. JAMES LAW, OF CORNELL UNIVERSITY.

"The glorious Uncertainty of the Law" seems to have been known and appreciated in all ages, but the genuine inconsistency and even absurdity of many existing statutes are little appreciated by the bulk of the community. The equivocal wording of some statutes and the conflict of precedents by which their meaning is explained, are best known to the practising attorney, who often reaps a golden harvest from the acknowledged uncertainty, and the doubt that must attach as to the prospective verdict. But aside from laws that are doubtful in their meaning, there are others which place an administration in a position which is at once inequitable, inconsistent, and subversive of their alleged object. In no department of legislation, perhaps, can more striking instances of this be obtained than in the enactments for the suppression of contagious diseases in live stock. One or two instances of this kind may here be noted, and to show that the representative of a Republic enjoys no monopoly of this legislation, a beginning may be made with an Empire of the Old World.

British Veterinary Sanitary Laws.

After a long and sad experience of ruinous losses from the importation of cattle diseases that are not native to the soil, England, under the Cattle Diseases Act of 1869, ordered that all cattle landed from certain infected countries of Europe should be slaughtered in enclosures provided for the purpose at the several ports of landing within ten days after arrival. In 1878 this order was extended so as to embrace all cattle coming from the United States of America. The step was a wise one, and must remain unimpeachable so long as the several prescribed countries retain dangerous cattle plagues within their limits.

But such legislation demands as a corollary that the proscription of countries shall be coextensive with the existence of these cattle plagues in the countries in question, and that the movement and sale of herds that have been exposed to infection in England itself shall be prohibited with a corresponding rigor. Now what are the facts?

Ireland, the first portion of the British Isles to be infected with Lung Plague (contagious Pleuropneumonia), and the portion which has since been the most extensively infected, is allowed to ship her herds to any English port with but a cursory and necessarily imperfect port inspection. In view of this the Professional Officer says in his report to the Privy Council, 1877:

"Animals from Ireland can, under existing arrangements, be landed at any part of the coast. It is true that the Privy Council may make regulations for the detention and inspection of Irish stock, whenever it may be landed, but the idea of dealing with animals from Ireland in a manner so exceptional had not been entertained. * * * Inspection of Irish stock, as at present conducted, gives rise to impressions which are fallacious. The fact of a system of inspection having been established, naturally suggested the idea of restictions being imposed on the movement of diseased and infected animals, whereas no restrictions are enforced, except in a few instances when the local authorities have taken action on the reports of the Privy Council inspectors. The results of the present system may indeed be summed up in a few words; a certain number of diseased animals are detected by the inspectors during an examination which is necessarily imperfect, and the local authorities receive information which enables them to act, if they are so disposed, but it must be added that the information frequently arrives too late to be of any use, and in case the authorities could obtain such information, if they desire to base an action upon it, more promptly by directing their own inspectors to attend at the wharves where Irish animals are landed, and with all the necessary powers to detain diseased animals, and regulate the movement of those that had been herded with them."

Here it is evident:

1st. The cattle from an infected country are excepted in the general order for slaughter, and are admitted to spread the infection in Great Britain.

2d. The only inspection of such cattle is made at the port of landing, and therefore cannot detect all cases of a disease which, like Lung Plague, has a period of incubation (from the actual infection to the first symptom of disease), of from two to fourteen weeks.

3d. When this confessedly "imperfect" inspection succeeds in detecting disease, the local authorities must be apprized in order to the detention of the stock, and usually the cattle have been carried on before their order can be issued.

The condition of the internal cattle trade in Ireland, and the facilities for infection, may be judged from the following extracts from the report of the Director of the Irish Privy Council Vet. Department:

"Animals exported from Ireland are very seldom bred by their exporters, and often, before exportation, pass through several hands from those of the breeders to those of the final purchasers, for exportation to Great Britain.

"The changes of ownership are more frequent with respect to cattle, than with respect to sheep and swine. With each change of ownership there is generally a change of locality, and the movement entailed thereby, as well as the exposure in public fairs and markets, and on lands and premises used as temporary resting places for animals in transit, *subject them more or less to diseases of a contagious or infectious nature*, particularly foot and mouth distemper, when that malady is prevalent.

"In Ireland weanling and more advanced calves are purchased throughout the country from the rearers, who are not always their breeders, by persons who either deal in or prepare store stock, and when a sufficient number is collected, are kept by them frequently on different pastures, hired but for the grazing season, changing the locality as emergencies require, either for termination of tenancy, inclemency of season, deficiency of food, for the sake of convenience, or for other causes.

"Such pastures, many of which are mountainous and occupy large tracts, are in many cases grazed by cattle belonging to many different persons, who pay by the head for the summer grazing of their animals. The owners of these cattle, who often reside in a different part of the country, or out of it, or are engaged elsewhere in another branch of the cattle trade, or are travelling about, frequently do not see them nor have them visited until the termination of the grazing season, when the animals are removed to other localities more favorable for the time of the year, there perhaps to meet with other lots, belonging to the same or different owners, which have been brought from different parts of the country for the same reasons.

"These animals in due time are brought in assorted lots to public fairs and markets, where they are generally sold for the purpose of being further matured; and when matured they are again brought into the market, and resold as early stores."

The Director goes on to describe a similar series of changes of hands, exposures in public markets to thousands of cattle collected from all quarters, and of changes of pasturage on common ranges where they are admitted at so much per head, extending over the second and third years, when they are shipped to England fat, if they have not been disposed of sooner for store cattle. He adds: "*Many of the Dublin dairy proprietors are extensive cattle dealers, particularly for exportation.*"

Now no condition of things could prove more favorable to the propagation of a contagious disease than this incessant change of hands, of place, and of pasture, this frequent aggregation of cattle from all sources and an open market, this successive detention of different herds on the same resting

grounds, or in the same buildings, and this pasturage in common of herds on an open range.

These conditions are closely allied to those which have perpetuated the Lung Plague from time immemorial on the open steppes of Europe and Asia, and on the mountain ranges of Central Europe, and which in more recent times have enabled it to defy all attempts for its extinction on the open ranges of Australia, New Zealand, and South Africa. Similar conditions operate around our own infected cities in the East, and the plague can never be extirpated until these are abolished.

Can it be wondered that Ireland has been an especial home of this bovine plague for over forty years? And can it be credited that England, so stringent with regard to the exclusion of infection from other countries, should continue to welcome the imports of plague-stricken Ireland?

A second blunder, no less grossly absurd is found in the order regulating the internal cattle traffic of England. "The Diseased Animals (in transit), Order of 1878," enjoins concerning cattle:

"1.—While exposed for sale or exhibited in a market, fair, sale-yard, place of exhibition, or other place; or

"2.—While placed in a lair or other place before exposure for sale; or

"3.—While being in or on a landing place or wharf or other place during transit, or while in course of being moved by land or by water; or

"4.—While being on common or uninclosed land; or generally

"5.—While being in a place not in the possession or occupation, or under the control of the owner of the animal."

"*A.*—PLEURO-PNEUMONIA.

"(*a*)—When Pleuro-pneumonia is found to exist the Inspector of the Local Authority shall seize and detain all the *diseased* cattle."

"(*b*)—The *diseased* cattle so detained shall, if not slaughtered in the place where they are seized, be moved to the nearest available slaughter-house with the license of the Inspector; and that license shall be in force for twelve hours, and no longer, and shall specify the slaughter-house to which the cattle are to be moved for slaughter; and they shall be there slaughtered in accordance with the Act of 1878."

* * *

"And the following regulations shall apply in case of

"*C.*—ANIMALS NOT DISEASED."

(*c*)—All animals in the market or other place referred to in this Article, other than the diseased animals so seized, may be moved in all respects as if no disease had been found in that market or other place."

Is it credible that legislators so strenuous to suppress a *contagion* that they enjoin the summary slaughter of all cattle from infected countries, should thus deliberately allow the free sale and removal of the still apparently healthy cattle, taken from a diseased herd, and which have been actually exposed to infection and have, presumably, become infected? No wonder that the process of extinguishing this bovine plague in Great Britain has been a slow, and an expensive one.

Maccaroni—A Good Food.—In the scarcity of vegetables, and as vastly more nutritious than potatoes, Maccaroni makes an acceptable variety. It is somewhat strange that this nutritious food is little known outside of hotels and restaurants. Ordinary wheat contains 69 percent of heat-producers, and 11 per cent of flesh-formers. Certain varieties of wheat grown in Italy, have a much larger percentage of flesh-formers (we cannot give the exact figures,) which fit it for the production of Maccaroni. The wheat is ground, the flour is made into a paste with water, and by a machine is squeezed out in the form of tubes, like enormous pipe-stems. Maccaroni contains so much gluten (a flesh-former,) that it may be cooked without falling apart. It is cooked by breaking into convenient lengths, washed, and dropping into boiling water, seasoned with salt, and cooking until tender. It makes an excellent breakfast dish if dressed with a cream sauce, the same as for milk toast. For dinner, boil in salted water until done; place in a pudding dish, distributing grated cheese among the layers, seasoning with salt and pepper, and adding a few bits of butter at top, place the dish into the oven, until the top is brown. Any firm cheese, hard enough to grate, will answer, and about a quarter of a pound is required to half a pound of Maccaroni before boiling. The addition of cheese makes a dish about as rich in flesh-forming materials, as the same quantity of meat.

A Barrel Header.

The accompanying engraving shows a useful contrivance for pressing in the heads of barrels. Fruit and eggs require to be firmly packed to bear transportation with safety. Eggs properly packed, with an inch of chaff or oats between the layer of eggs, can be properly compressed without injury; in fact, without this needed pressure they will often suffer damage.

The Header consists of a bar of ½-inch iron with a loop at one end and two diverging hooks at the other to grasp the bottom of the barrel. One end of a lever is placed in the loop, with its middle resting on a block placed on the center of the head. A strap or cord with a loop or stirrup is fastened to the other end of the lever. The foot is placed in the stirrup, and the weight of the body brings the head of the barrel down into its place. The hands of the operator are free to put the hoops securely in place.

Where People Die Fastest.—In a Congressional speech, June 28th, advocating the admission of Washington Territory as a State, Hon. Thos. H. Brents gave the figures below as the annual number of Deaths for each 1,000 inhabitants, the average for the whole United States being a trifle over fifteen (**15.09**) per 1,000.—The death rate in some European countries are added for comparison:

	Rate.		Rate.		Rate.
1—D. C.	23.60	19—Vt.	15.12	37—Fla.	11.72
2—N. Mex.	20.37	20—Del.	15.09	38—Nev.	11.67
3—Md.	18.96	21—Penn.	14.92	39—Minn.	11.57
4—Mass.	18.59	22—Conn.	14.74	40—Oregon.	10.67
5—Ark.	18.46	23—Maine.	14.67	41—Wash. T.	10.05
6—N. Y.	17.38	24—Ill.	14.63		
7—R. I.	17.00	25—Ky.	14.39	EUROPE.	
8—Mo.	16.89	26—Ala.	14.20	Hungary	45.00
9—Tenn.	16.80	27—Georgia	13.97	Austria	32.20
10—N. J.	16.33	28—Cal.	13.34	Italy	29.98
11—Va.	16.32	29—Ohio.	13.32	Spain.	29.72
12—N. H.	16.09	30—Col.	13.11	Germany	27.21
13—S. Car.	15.80	31—Neb.	13.11	Prussia	25.48
14—Ind.	15.78	32—Miss.	12.89	France	26.64
15—Texas.	15.54	33—Wisc.	12.17	Netherlands	23.87
16—La.	15.44	34—Mich.	12.06	Eng. & Wales	21.83
17—N. Car.	15.39	35—W. Va.	11.99	Denmark	19.92
18—Kansas.	15.22	36—Iowa.	11.93	Sweden	19.36

Of course the newer Territories, occupied by strong, vigorous adults, have a lower death rate than where there are many young children; while large cities like New York, Philadelphia, etc., having many emigrants, and with crowded tenements, are affected by these special circumstances.

Sundry 1880 Census Items: In the whole United States, there were: IN COTTON MANUFACTURE, 230,223 Looms; 10,921,147 Spindles, using 1,586,481 bales, and employing 181,628 persons.... IGNORANT PEOPLE, over ten years old, those who could not read, 4,923,451, or nearly 10 per cent; number who could not write, 6,239,958, or 12¼ per cent....GOING TO SCHOOL, 9,781,521 enrolled in public schools, with an average attendance of 5,805,342....SEA-SHORE LINE, including bays, islands, and irregularities of coast: Atlantic Coast, 12,359 miles; Pacific Coast, 3,251 miles; Gulf of Mexico, 5,744 miles; total, 21,354 miles....ANTHRACITE COAL MINED, 28,646,995 tons (of 2,000 lbs.); value at mines, $40,331,981 ($1.47 per ton); yearly average raised each by miner, 454 tons; men and boys employed below ground, 40,754; above ground, 27,485; total, 68,239.—BITUMINOUS COAL, 42,420,581 tons; total Anthracite and Bituminous Coal, 71,067,576 tons; men employed in mining, 170,585 ...Coal mined in 1880 in England, 163,876,000 tons....GLASS MADE: Value, $21,013,464, of which $868,305 was Plate-Glass; $5,047,313 Window-Glass; $9,534,020, Glassware; $5,563,826, Green Glass....IRON ORE IN 1880: Tons produced, 7,971,706, valued at $23,167,007; of which Pennsylvania produced 2,185,675 tons; Michigan, 1,834,712 tons; New York, 1,262,127 tons; New Jersey, 757,372 tons; Ohio, 547,303 tons; Missouri, 386,197 tons; Alabama, 191,676 tons; Virginia, 182,676 tons; Maryland, 139,628 tons; Tennessee, 104,465 tons; 13 other States produced from 91,416 tons, down to 513 tons in Indiana.

Buckwheat as Green Manure.—"C. A. N.," Danville, N. J., having read in the *American Agriculturist* that Buckwheat is used as a green manure, has asked the opinion of "good farmers" as to the effect of such a crop. Some thought it would be a good thing. Others advised him not to do it, "as it would kill the land, and take 10 years to bring it back to a condition to raise crops from." In view of this adverse opinion, Mr. N. asks, "how to prevent deleterious effects when Buckwheat is so used." When the author of the "Natural History of Ireland" came to the chapter on snakes, he wrote, "There are no snakes in Ireland." If there are any who have any land "killed" by the plowing under of a crop of Buckwheat, we should like to see that dead land. We can assure Mr. N. that that part of New Jersey is the only spot on the face of the globe where Buckwheat has that effect. The growth of a crop of Buckwheat can add nothing to the soil, beyond what is already there, save what it takes from the atmosphere. All the agricultural practice of generations is in favor of this use of Buckwheat, and probably those who say that it kills the land, never tried it or ever saw it tried.

The Marianne North Gallery.—The English Horticultural Journals are all aglow with the praises of Miss Marianne North and her munificence. It would appear that this lady is an artist of marked ability, and, what is unusual with artists, abundant means. Having visited every part of the globe, including the United States, especially the Pacific Coast, and painted the characteristic vegetation of every country, with incidental representations of birds, reptiles, and insects, especial attention appears to have been given to economic plants, and characteristic landscape views are made to serve as accessories to the plant portraits. This industrious lady has accumulated some 600 oil paintings; more than that, she has erected, at her own expense in the Royal Gardens at Kew, a Gallery for their preservation and free exhibition, and presents the whole as a free gift to the British nation. Prof. Helmsley has prepared an elaborate catalogue of the pictures, and it is evident from the accounts of the Marianne North Gallery, that it essentially adds to the attractiveness of Kew as the great Botanical Garden of the world.

What are Vetches? asks a subscriber at Middleburgh, Pa. The Vetch or Tare (*Vicia sativa,*) is a plant closely related to the Pea, and in appearance is much like a Pea in miniature. In Europe it is valued as a forage plant, but the same cause that prevents our making much use of the Pea as a farm crop—our hot climate in summer—renders the Vetch of little use in this country. Those who wish to make a trial of them, can get the seeds of the leading seedsmen, who offer both spring and winter Vetches.

Rushes—Not Grasses.—A correspondent in Bourbon Co., Kentucky, sends specimens of what he takes to be a Grass, and asks for the name. The plant is not a Grass, but a Rush, a species of *Juncus*. While some of the Rushes have Grass-like leaves, they may be distinguished from the Grasses by an examination of the flower. In the Rushes, the flower is six-parted, while the parts of the flowers in the true Grasses are always in pairs, or are two-parted. But little is known about the economical value of the Rushes. What is known as "Black Grass," and very abundant on the salt marshes of the coast, is not a grass, but a *Juncus* (*J. Gerardi*), and is regarded by those who feed it as of real value; but beyond this marsh species, little is known of the value of the various Rushes as food.

Kentucky Coffee-tree as a Fly Poison.—"W. S. R.," Mason Co., Ky., writes us that the leaves and the beans of the Kentucky Coffee-tree (*Gymnocladus Canadensis*), bruised and mixed with milk, are used in his neighborhood as a fly poison. He writes to inquire if this tree has been used to kill other insects, especially cabbage-worms. We have not been able to find any account of the use of this tree as an insect poison, and our friend's letter is the first intimation that we have had on this subject. The tree is found wild from Western New York and Illinois, southward, and is often cultivated elsewhere as an ornamental tree. If any of our readers can give information as to its use in killing insects of any kind, we hope that they will impart it.

A New Book On Insects.—"The Injurious Insects of the Farm and Garden," by Mary Treat, is now ready. Every cultivator is aware that destructive insects come and go—but more especially come, in a most unexpected manner. A few years ago, our whole cabbage crop was threatened with extermination by the accidental importation of a "Cabbage Worm" from Europe. It is a matter within the experience of most farmers, that, by supplying it with food, the "Potato Bug" has been induced to migrate from its home in Colorado, to the shores of the Atlantic, and has left its mark on the way. These invasions of insect enemies are so sudden, that the standard works of a few years ago, usually fail to give any information about the injurious insects of the present day. While we have the excellent works of Harris and Packard, the farmer and gardener may consult them in vain for information about a recent comer. Indeed, our most useful knowledge as to the insects now most injurious to our crops, is contained in the Reports of Prof. Riley, as the State Entomologist of Missouri, that of the Entomologist of Illinois, in the Bulletins of the American Entomological Commission, and in the pages of the American Entomologist. Mrs. Treat has done a good work in gathering the most important of these scattered materials, and in presenting them in a condensed form in the present work. She has also given, in several cases, the results of her own observations. The present work is especially valuable for its abundant illustrations. With insects, a good engraving is far more useful than a detailed description, and in view of this fact, the publishers have introduced illustrations of the insects, in their various stages, wherever it could be done to advantage. The work gives a popular account of those insects most injurious to the cultivator, and suggests the best known agents for their extermination. Price $2.00, post-paid.

"The Angora Goat; Its Origin, Culture and Products. Containing the Most Recent Observations of Eminent Breeders. With an Appendix on the Alpaca and its Congeners, or the Wool-bearing Animals of the Cordilleras of the Andes. By John L. Hayes, LL.D., Secretary of the National Association of Wool Manufacturers, etc., etc. New York: Orange Judd Company."—The title of this work is so descriptive of its contents, that we have given it as above. When one is investigating a subject, it is a great satisfaction to meet with a work that may be regarded, so to speak, as a land-mark, one that brings up, or, as the popular phrase goes, "posts up" our knowledge to a given point. One who would investigate the Angora Goat has in this work a resumé of all that has gone before, and will be safe in taking this as an exponent of the knowledge up to date on the history of this animal. Besides giving a full account of the Angora and the present status of the breeding of this animal in this country, the matter of the Appendix is full of historical interest, even should it lead to no practical results. There are no doubt many localities on the Atlantic slope, south of Maryland, where the Angora Goat, properly managed, may be profitably introduced, while the far West, from the Rocky Mountains to the Pacific, including Texas, offers many localities especially suited to its profitable breeding, as the evidence cited in this work abundantly shows. While the profit from its fleece has heretofore sometimes been governed by the caprices of fashion, the animal, notwithstanding, has a permanent value. It can be kept at a minimum of cost, and all accounts agree in asserting that the flesh, of the young animal at least, is of most excellent quality. Aside from the value of the fleece for certain fabrics, that of the pelt, to be used for trimmings and for making mats, is always considerable, and the skin, when tanned, is adapted to many uses. The value of the Angora as a milk-producing animal should not be overlooked. Col. Watts, of South Carolina, says of a cross from a pure Angora buck upon a common ewe goat: "I have raised a ewe goat that will give four quarts of as good milk as any cow on my plantation. The feed of one of my cows will keep twelve goats." Our country, in its wide range from North to South, and from Ocean to Ocean, presents a wonderful variety of situation and climate. We have only to select those animals and plants best suited to particular localities, to reach the highest agricultural prosperity. There are places where the raising of the Angora must be profitable, and the work in question is the best guide to these. The author takes up the subject as one interested in the supply of an important raw material to our increasing manufactures. How competent he is to his task, the present work would be abundant evidence, did not his selection by the President as one of the Tariff Commission—indeed as its chairman—attest to his reputation as one interested in our productive industries. Price $1.50, post-paid.

Weight by Measure.—The rule for estimating dressed weights of live cattle is as follows: Measure from top of shoulders to root of tail for A in inches, then around the body, back of the fore-legs, for girth also in inches for B. Then A plus the square root of B, divided by 7.288, and multiplied by 14, equals the weight in lbs. of dressed meat. There is an indirect method of getting cubic contents of the carcass, deducting one-half for offal, and taking 62 lbs. as the specific gravity of the carcass. A square or parallelogramic cow would come out exact. Inferior cattle must be allowed for as they verge from fat and flesh down to skin and bone. Example: A = 60 inches, B 81 inches; $60 \times 9 = 540 \div 7{,}238 \times 14 = 1{,}044$ lbs.

Artificially Hornless Cattle.—In answer to an inquiry signed "W. G. L.," Newbern, N. C.—A farmer, whose name is forgotten, of one of the southern tier of counties in this State, once told in the office of the *Agriculturist* that he used a white heifer or cow as a leader for his flocks of sheep, which ran in pastures filled with low bushes, high enough to prevent the sheep seeing one another at a distance; hence, to prevent the flock breaking up into isolated groups, he and his father before him practised removing the horns from white calves when just pricking through, and always kept a white heifer with the sheep as a rallying point, as soldiers rally to the standard. They had originally a white heifer which was treated in this way, and so were her heifer calves, which generally came white. In the third generation they had two calves upon which no horns developed. The horns were removed by searing with a hot iron—a cruel practice, but probably safer than to remove by cutting, as there would be less hemorrhage.

Currant-worms.—"H. W.," Miami Co., Ohio, writes with reference to our directions to kill the worms on Currants and Gooseberries, that he watches for the "small waspish-looking *flies*," and kills them wherever he can find them. He then looks for eggs upon the underside of the leaves, and crushes them; then, if he finds pin-holes in the leaves, he knows that there are worms at work, and gathers and burns them. If, after all, some worms appear, he gives them a dose of air-slaked lime while the bushes are wet with dew. His interesting letter shows that he adopts the true method. He first understands the operations of the enemy, and then attacks it as early as possible. If he can kill a single female fly, he prevents the laying of many eggs.

Sea Kale Forcing.—"W. H. D.," Baltimore, Md., asks if the cultivation and forcing of Sea Kale is carried on in this country as it is in England, where it is practised, and if it is remunerative. Sea Kale is one of the vegetables common in Europe, that seems to have never become fairly established in this country. Those who wish for it, can find it, as they can almost everything that grows, in the New York markets in its season, but in very limited quantities. We have never seen the forced Sea Kale offered, but that grown in the open ground is to be had in early spring. There is nothing in our climate to prevent its cultivation here; it simply appears to be a plant that our people do not care for. Probably the abundance of Sprouts, or German Greens, supplies its place. Then the open-air crop comes in at the same time with Asparagus, which is generally preferred. There would no doubt be a limited demand for Sea Kale in our large markets from the Europeans residing in this country.

The European Sparrow.—Every now and then we have an inquiry, usually from some Western State, about the English, or European Sparrow. The latest comes from a subscriber at Ada, Tenn., who says that he "is interested in the new comer," and asks us to give an engraving of the bird. As long ago as July, 1865, we gave an illustration showing both sexes of this Sparrow. At that time a span-worm was a real pest upon the shade-trees of New York and the neighboring cities. The introduction of the European Sparrow at once disposed of the "worm," and there was a "boom" in favor of the bird. People in other cities paid high prices for Sparrows, and the bird has been widely distributed. It has made itself thoroughly at home in many places, and most of these would now gladly know how to get rid of it. The Sparrow, while it has in some places been useful in keeping insects in check, has, as a general thing, made itself quite too much at home, and has proved a nuisance. It is a quarrelsome creature, and where it establishes itself, it drives off all other small birds. It increases in numbers rapidly, and if houses are not provided for it, it seeks places in the door-caps and window-caps of houses. If these are of carved stone, the work affords them nesting places, and they repay the hospitality by disfiguring the stone-work with their droppings. The bird has proved to be, on the whole, such an undesirable one, that we would not advise its introduction to any new locality. If insects are troublesome, it will be well to try all other means of destroying them before introducing the Sparrow.

"Willing to Rough It."—"G. H. T.," Pa., asks in what State he had better settle, about homesteads, and what are the prospects "out there,"—meaning the West—for a young man who is "willing to rough it." We, for obvious reasons, do not advise where to settle. It is a point upon which each one must choose for himself. We would not incur the responsibility of advising our most intimate friend where to go—much less a stranger. Our correspondent should write to the Department of the Interior, at Washington, D. C., for a copy of the Homestead Law. As to his last question, we do not think that a young man with the spirit implied in the expression, "willing to rough it," can go amiss anywhere in this broad country. It is the true spirit of the pioneer, and it makes little difference to which of the Western States he goes; if he can "rough it" for awhile, he will come out all right at last.

Half a Million Bushels a Day!—From the comprehensive tables prepared by Mr. S. H. Grant, Superintendent of the Produce Exchange, we figure out that during six months of 1881, when the canals, railroads, and lake and river navigation, were all in active operation, the delivery of Grain at New York City averaged very nearly half a million bushels for every working day. To comprehend the magnitude of these figures, we may suppose this Grain loaded upon farm wagons, 40 bushels upon each, and a wagon and team occupying a space of fifty feet along a highway. The line would extend 118 miles for a single day's receipts, and for a hundred days only, it would extend 11,800 miles, or more than three times the distance across the continent, from New York to San Francisco.—During the entire year 1880, the receipts of Grain at New York alone reached the aggregate of 171,776,745 bushels. This, if brought by 40-bushel wagon loads, 50 feet to wagon and team, would require over four million loads (4,294,418), and the line extend 40,667 miles, or one and three-fifth times around the globe.

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The **only** machine that received an award on both Horse-power and Thresher and Cleaner, at the Centennial Exhibition; was awarded the two last **Gold Medals** given by the New York State Agricultural Society on Horse-powers and Threshers; and is the **only** Thresher selected from the vast number built in the United States, for illustration and description in "Appleton's Cyclopedia of Applied Mechanics," recently published, thus adopting it as the **standard** machine of this country. Catalogue sent free. Address

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SPLENDID AND WONDERFUL VARIETY OF

ORNAMENTAL **GRASSES** EVERLASTING **FLOWERS** AND **IMMORTELLES**

Tastefully arranged in BOUQUETS and DESIGNS, or for sale in Bulk.

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Address **JOHN CASE, Frenchtown, N. J.**

N. B.—If the man in Lancaster Co., Pa., will send me his address, it will give me great pleasure to give him satisfaction. I received his order and stamps all right; but regret to say have lost his address.

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For a good, durable and cheap Farmers' Fruit Dryer address **D. STUTZMAN, Ligonier, Ind.**

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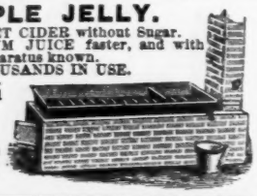

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Also Brown Leghorn (prize winners) EGGS, @ $1 per doz., and B. B. R. G. Bantam Eggs for Hatching (imported), @ $1.50 per doz., in new baskets. Safe arrival guaranteed.

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Dark Chestnut Clydesdale Stallion **"Hard Times,"** foaled May 3d, 1880, imported direct from Scotland by advertisers last fall. "Topsman" and "Prince of Wales" stock. Entered in Volume 5 Clydesdale Stud Book. Height, 16 hands, 1 inch. Girth, 77 inches. Weight, 1,400 lbs. This Colt was pronounced in New York, one of the best yearlings that ever crossed the Atlantic. For further particulars address EWEN, SMALL & SIMSON, Scotia Ranch, Palo Pinto County, Texas.

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Best for wool and mutton. February lambs for sale. Both parents thoroughbred. $15.00 each.

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13—Vox Humana, Tremulant.
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REEDS.—10 full Sets Reeds. Are of the Celebrated Golden Tongue (patented,) the tongue of which are secured to the block by dovetailing instead of ordinary rivet, which soon breaks or rattles. The Golden Tongue never breaks or wears out, holds its tone perfectly. No tuning is ever required after leaving factory.

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PRICE.—The price of this Organ, which includes a music book, organ bench, choice music, &c. securely packed and delivered on board the cars at Washington, New Jersey, is *ONLY $90.00.*

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☞If the Beethoven Organ, after one year's constant use, does not give you perfect satisfaction in every particular, and is in any way not as represented in this advertisement, I hereby bind myself to take it back and refund you your money paid in current funds, with legal interest of New Jersey, (six per cent.) I further agree to pay freight charges on the instrument both ways, the money to be refunded immediately upon receipt of the instrument at Washington, New Jersey. I further agree, if requested, to exchange it for any other organ or piano as shown in my catalogue.

Very truly yours,

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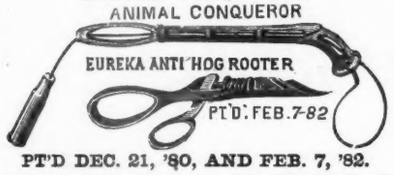

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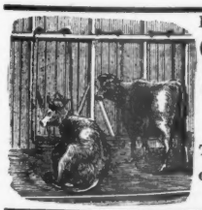

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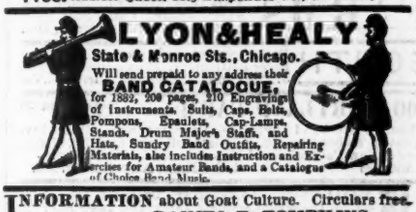

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